

**Sillitoe, K. L.**

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**Doctor of Professional Studies**

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**Visual communication in the 21<sup>st</sup> Century:**  
**A study of the visual and digital communication**  
**experiences of post-Millennial university students**

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Thesis submitted in accordance with  
the requirements of the  
University of Chester  
for the degree of  
Doctor of Professional Studies  
By

**Kathleen L. Sillitoe**

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The material being presented for examination is my own work and has not been submitted for an award of this or another HEI except in minor particulars which are explicitly noted in the body of the thesis. Where research pertaining to the thesis was undertaken collaboratively, the nature and extent of my individual contribution has been made explicit.

Signed:

Kathleen L. Sillitoe

Date:

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## Abstract

### **Visual communication in the 21<sup>st</sup> Century: A study of the visual and digital communication experiences of post-Millennial university students**

**Kathleen L. Sillitoe**

Higher education (HE) visual communication students, who are considering careers in the creative industries of advertising and marketing, need a high level of skills in visual and digital literacy. However, students born after 1995 (post-Millennials), now entering HE, appear to present with fewer visual communication and digital skills than previous cohorts. This research provides a case study of post-Millennial students and examines the extent to which they are learning visual communication skills through their use of widely available digital media technologies.

Four groups of post-Millennial students were investigated: one group of Level 4 Computer Science students; two groups of Level 4 Advertising students, from different years; and one group of Level 6 Advertising students. The students were surveyed using interview, questionnaire, observation and focus group. The resulting data was coded and analysed to extract themes. A further layered analysis, using a Cultural-Historical Activity Theory (CHAT) framework, was then carried out. Using this CHAT framework, deviances were found within the activity system of this HE advertising programme delivery. The most fundamental change was in the dissonance found between the student participants' and HE's learning objectives. This was in the context of a complete reversal of the relative importance of the communities within the students' activity systems. They had become 'flipped learners'. These CHAT related findings are arguably relevant to wider HE settings.

The research also found that the students in the focus groups had a high dependency on the Internet. They used it to search for, and download, images and text. They also preferred to use the Internet to source knowledge or information, rather than to approach staff. Their visual literacy skills appeared to be weaker than those of previous cohorts. Despite their weaknesses, many students had a high level of confidence in their own ability that was not reflected in their work. A strong theme of 'need for speed' was highlighted, with many students believing that speed of production was more important than the quality of an artefact in professional work.

The systemic changes highlighted by the CHAT framework, together with the research's other findings, suggest potential implications for the teaching of HE students of visual communication and for the future of the creative industries.

Further research is indicated in the areas of the effects of young people's: use of the mobile phone on visual literacy skills; perception of industry needs; increasing dependency on the Internet for the acquisition of knowledge; and their need for speed.

**KEYWORDS:** Advertising, CHAT framework, digital literacy, new media technologies, post-Millennial, visual communication

## Summary of Portfolio

During the course of this Doctorate in Professional Studies programme, in my role as Senior Lecturer in Visual Communication and Digital Design, I have considered the changes that are occurring in higher education. One main impact of these changes is in the way that a university education is now funded, with the burden having shifted from state to student. This has led to an increase in alternative higher education providers

In my Personal and Professional Review (2012), I drew attention to some of the issues that might occur as a result of these changes, such as streamlining of programmes and the need for industries and universities to work closer together. I also highlighted the function of higher education.

It might be believed that universities “serve two purposes ... The first is to ‘equip’ ‘young people’ to get jobs in “the fast-moving economy of tomorrow”. The other is to contribute to ‘growth’, to develop the ‘cutting-edge products’ needed in ‘today’s competitive global marketplace’.” (Collini, 2012 as cited in Sillitoe, 2012)

In today’s knowledge economy, education is becoming an internationally traded commodity. No longer is it seen primarily as a set of skills, attitudes, and values required for citizenship and effective participation in modern society—a key contribution to the common good of any society. Rather, it is increasingly seen as a commodity to be purchased by a consumer in order to build a ‘skill set’ to be used in the marketplace (Altbach, 2015, p. 2).

In the creative industries, the skill set required for the workplace, such as design and production skills, have been identified as skills gaps in graduates, “skills in short supply from new entrants include sales and marketing skills, multi-skilling, *using software packages such as Photoshop, Avid and Final Cut Pro*” (my emphasis) (Skillset, 2011, p. 45). However, these skills can easily now, and far more cheaply than a three-year degree course, be obtained online through websites like Lynda ([www.lynda.com](http://www.lynda.com)), the Shaw Academy (Shaw Academy, 2018), the London School of Communication ([www.arts.ac.uk](http://www.arts.ac.uk)), or Pitman Training ([www.pitman-training.com](http://www.pitman-training.com)). Commercial organisations like these provide training to diploma level in a range of subjects such as Photography, Marketing, Design, Digital Marketing, Web Design and Production, Business, Leadership and Management. Each of

these courses allow its students to build up an individual set of skills that are internationally accredited in line with the European Qualifications Framework (EQF) (Shaw Academy, 2018).

As online courses like these develop and student fees for higher education programmes increase, it may have a significant effect on the numbers of students wishing to follow a degree programme in the future (Rosen, Carrier, & Cheever, 2010).

Research conducted for the Minor Research module - IS8002, investigated the reasons for poor retention and attendance within the University of Chester's Department of Media. It concluded that many of the reasons that students chose not to continue with their studies were due to reasons out of the control of academic departments (Sillitoe, 2013). Lack of social opportunities, illness, loneliness and feeling overwhelmed by the experience were reasons often cited for their withdrawal.

Therefore, as the supply of knowledge and skills development increases, it is prudent to look at the provisions offered by HE to ensure that the qualifications remain competitive, and the skill sets developed current and up-to-date, which is the focus of this thesis.

## Chapter 1. Introduction

### 1.1. Introduction

This research has developed in response to a growing trend, noticed by a number of lecturers in visual communication, that in the years between 2014 and 2017, students entering university to study visual-based media programmes appeared to have decreasing competency in digital media production skills, when compared with previous cohorts. These young, post-Millennial, people have grown up with a wide range of digital tools that they use in ways that seem alien to older generations. They appear adept at using certain digital technologies, such as mobile phones and social media tools, but are seemingly less competent with digital tools such as desktop computers and industry-based software. This apparent paradox concerning young people's lack of appropriate digital skills is particularly perplexing, given that they are the first cohorts who have grown up in a world where digital technology pervades. At the same time, the creative industries have identified specific gaps in graduates' abilities in the use of software and digital production tools. At the same time, there has also been a notable reduction in the number of young people studying art and design subjects at GCSE (Easton, 2016; Hill, 2016; Rocks, 2017; Skillset, 2011).

It is vital that teachers of visual media programmes in Higher Education (HE) have a solid understanding of what young people are learning about visual communication if they are to effectively meet both the needs of the students and the needs of the burgeoning creative industries. To this end, this research explores the digital and visual communication experiences of four groups of young people, born after 1995, who have never known a world without the Internet or digital technology. The thesis uses a Cultural-Historical Activity Theory (CHAT) framework to investigate what *instruments*, *rules*, *communities*, and *divisions of labour* are used by the post-Millennial (*subject*) in the production of a visual communication artefact<sup>1</sup> (*object*). This is to determine whether there are any deviances between the students' current working practices, and the accepted professional practices in the creative industries and HE, that might need to be addressed by those teaching visual-based communication programmes in HE.

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<sup>1</sup> The term artefact or visual communication artefact is used throughout, to define the products produced by the individual students in this study.

## 1.2. Aim and Objectives

The aim of this research is:

**A study of post-Millennial students, entering a higher education advertising programme, that investigates the extent to which they have developed their visual communication skills through their use of widely available digital media technologies.**

The aim will be achieved through the following objectives:

1. To examine the key debates around digital technology and the post-Millennial learner.
2. To identify the key skills needed to produce effective visual communication artefacts for commercial use.
3. To identify, through a study of new learners of visual communication:
  - a. what digital technologies they have previously used to develop visual artefacts,
  - b. what transferrable skills they currently possess,
  - c. which skills still need to be developed to prepare them for a career in visually-based creative industries.

Delivery of these objectives will be informed by a considered discussion of the key debates around what constitutes good visual communication, along with an examination of how people learn, both of which provide the theoretical underpinning for the research.

It is intended that the research findings will contribute to the discussion about 'digital natives' as proposed by Prensky (2001), who first used the term in his controversial essay *Digital Natives, Digital Immigrants*, to describe those born after 1980 who have been brought up with digital media. The findings will furnish a more detailed understanding of the digital technologies currently used by young people to communicate via visual media. Gaps that may exist between the visual competences of the post-Millennial learner and the requirements of the creative industries in which they may seek to secure future employment will be highlighted. Crucially, this research will help to better understand the future educational needs of the 21<sup>st</sup> Century learner in HE visual-based media programmes.

The research focuses on young people, born after 1995, who are often referred to as the iGeneration (iGen) (Rosen, 2010), post-Millennials (Combi, 2015) or Generation Z, who have never known a world without the Internet or digital technology (Vandewater et al., 2007). They have been described as having “redefined communication” (Rosen, 2010, p. 18); of “thinking and processing information differently” (Prensky, 2001, p. 1); and as “intuitive visual communicators” (Oblinger & Oblinger, 2005, p. 2.5). For the purpose of this thesis, the term post-Millennial is used.

### 1.2.1. Digital technologies and the post-Millennial

There has been much debate about the technological capabilities of young people. While some people believe them to be highly competent digital users (Prensky, 2001; Oblinger & Oblinger, 2005), others say that young people are no more likely to be competent in the use of digital media than anyone else (Bennett & Maton, 2010; Bullen et al., 2009; Conole et al., 2006; Jenkins, 2007; Kennedy et al., 2007). Many universally available technologies that are aimed at broadly based audiences are much simplified versions of more sophisticated or industry-standard software. Mobile phone applications (apps) are a ubiquitous example of the genre. Further examples can be seen in website builder websites such as Wix.com or Weebly.com, and in online survey and event booking tools. As these technologies develop, young people are often early adopters of these tools. However, there has been little research into the effects that the use of software such as mobile apps, or the use of online WYSIWYG (What You See Is What You Get) programmes, have on the users’ ability to understand the nuances of visual and digital communication. This research aims to fill that gap in knowledge, to provide a deeper understanding of how young post-Millennial people learn visual communication skills through the use of new digital technologies. It is especially relevant to identify any skills gaps between learners in HE and the creative industries that they may wish to work in. Therefore, it is also necessary to identify the skills needed by the creative industries.

### 1.2.2. Skills Gap

Skills identified by the creative industries as being in short supply are the use of software packages. Examples include image manipulation software such as Adobe Photoshop, and video production software such as Avid and Final Cut Pro (Skillset, 2011). The creative industries are struggling to continue to find people with the skills needed to use these digital production tools, and the gaps are said to have widened as new digital technologies are being developed (ECORYS UK, 2016). While the digital skills gap tended to focus on older

generations, skills lacking in younger people included communication skills, problem solving skills and technical job specific skills (ECORYS UK, 2016). However, it has also been noted that although there was a clear lack of digital and technology skills in older workers, young people were not as digitally savvy as previously thought.

Recent research concluded that the term ‘digital native’ has no generally accepted definition, that being of a particular generation does not imply that all in that generation are competent or can transfer the skills to the workplace or in academic environments.” (ECORYS UK, 2016, p. 270).

Creative Skillset, an organisation that works with visual and screen-based creative industries to develop skills and talent in education that are suitable for industry, found in their 2011 review of the creative industries that “two thirds of employers (68%) forecasted that technical, practical or job-specific skills will need improving or updating in the next 12 months” (Skillset, 2011). However, some expertise in image and video production might already exist in the post-Millennial learners who are used to producing images and video on a regular basis. Therefore, an analysis of which digital media production technologies post-Millennials are using, and whether any of these technologies are relevant to visual-based creative industries, is essential so that the focus for teaching of visual-based media subjects can be to fill whatever gaps in knowledge exist in the learner. In order to do this, it is necessary to first identify what essential skills are needed for effective visual communication within visually based media industries.

#### 1.2.3. Key debates about the skills needed for effective visual communication

To examine the question of what key skills are needed for effective visual communication, one needs to consider how communication happens via visual media, and how messages are embedded into an image. To help answer that question, this thesis draws on key theories within the visual arts, derived from the literature about how meaning is made through images. These theories include physiological and visual psychology, semiotics, aesthetics, and visual ‘rightness’ theory. They have been selected as they form the basis of most visual arts and media theory taught in higher education establishments.

#### 1.2.4. The existing industry-relevant skills of the post-Millennial

This thesis considers the extent to which new learners are learning industry-relevant visual communication skills through their use of universally available digital technologies. It then

analyses whether these skills are suitable for the needs of the creative industries, particularly in the field of advertising.

To do this, it is necessary to consider what constitutes learning, and to look at what evidence is needed to demonstrate that learning has taken place. For example, is it enough to be able to demonstrate that one is able to do something – procedural knowledge; or is it necessary to demonstrate that one knows how to do something – declarative knowledge? Other pertinent questions must also be posed. What happens when one is able to do something, but has not yet realised that one is able to do it? What happens when one thinks one can do something, and has not yet realised that one is not doing it proficiently? (Dunning & Kruger, 1999).

A constructivist / interpretivist methodology is used within the framework of Cultural-Historical Activity Theory (CHAT) (Engeström, 1999). The CHAT framework can be used to analyse what people think, feel and do, i.e. the relationship between the human mind and the activity. The CHAT framework allows researchers to analyse the activity systems of participants during the completion of a task, for example in this study during the production of a visual artefact.

### 1.3. Thesis Structure

Following this introductory chapter, this thesis is structured into five further chapters.

**Chapter Two** provides the background context of this research. As the focus of this research was on the post-Millennials' use of digital tools in relation to the interpretation and production of digital visual artefacts for advertising, it was important to establish what digital tools were used, how they use them, and to what end. Drawing on the debate surrounding the 'digital native', as identified by Prensky (2001), the first part of the literature chapter examines a number of studies that identify the ways that young people are using digital technology. This enabled the researcher to conceptualise the digital environment in which the post-Millennial currently operates. The skills that post-Millennials are developing as they negotiate this digital world were also considered through an examination of learning theory, particularly experiential learning theory. This provided the analytical apparatus to establish whether the skills already learned were likely to be deeply entrenched, thus potentially making them more difficult for the teacher to overcome.

To establish whether the skills that they are learning would be appropriate in a professional environment, it was important to have an overview of the principles and practices currently



used in design. For this, it was necessary to gain an understanding of how we learn to 'see', through an investigation of visual perception.

Finally, the legal and ethical considerations of digital media production were considered, particularly in the context of the post-Millennial and their use of visual media. The legal and ethical issues discussed in this thesis consider the extent to which students are aware of, and take heed of, copyright implications of downloading and using images from the internet.

**Chapter Three** describes the methodology and theoretical framework used in this research. The four focus groups are described, as is the underlying rationale for the selection of the participants, as well as the methods used to collect and analyse the data. The use of a Cultural-Historical Activity Theory (CHAT) framework is explained and set in the context of this study. The instruments, rules, communities and divisions of labour that form the CHAT framework are examined against the current working practices of the students. Any deviance from traditional creative industry working practice is noted and considered.

**Chapter Four** details the findings and provides an in-depth analysis of the data generated from each of the focus groups. A thematic analysis of the data was first conducted. This involved using a 'bottom-up' approach, which moved from observations to broader generalisations, as the themes emerged (Trochim, 2006).

The themes and sub-themes identified were:

1. Confidence
  - a. Over-confidence in the participants' ability compared to their actual ability
  - b. Participants' reliance on the internet or peers for help, rather than staff
2. Participants' perception of professional practices
  - a. Participants' desire to expedite tasks quickly – speed over quality
3. Participants' visual design consideration rules based on personal preferences.

The data was then subjected to a further layered analysis using, the CHAT framework, to identify any deviances between the working practices of the focus group participants and the accepted working practices of the creative industries and HE.

**Chapter Five** provides a discourse on the research findings in relation to the wider literature, thus putting the findings into the wider debate about 'digital natives'. The discussion considers the implications of the developments that are occurring in the digital environment that might further affect the way that post-Millennials use digital media and technology.

It considers and sets out some of the options that are available to those in HE who are teaching visual communication. This discourse ponders on whether the *object, instruments, rules, communities* and *divisions of labour* that are being used by the post-Millennials' that were highlighted by the CHAT framework, are in harmony with those currently used by teachers of visual communication in HE. It then proposes changes that might be made to accommodate the new learners' needs.

**Chapter Six** provides an overall summary of the research conducted for this thesis and considers the limitations of the research. The thesis concludes with the provision of suggestions of how educators might address some of the issues found. In so doing, it sets out some of the options that HE educators might use in the teaching of visual communication to post-Millennial learners. Some of the implications of recent changes in advertising and marketing communication are highlighted, as are the potential repercussions of the development of software used for visual communication.

#### 1.4. Contribution to knowledge

This thesis investigates how the post-Millennial uses digital and visual media production tools that can be widely accessed through the Internet in the production of visual artefacts. It attempts to discover what visual communication skills they are learning through their use of these tools, and whether those skills are suitable for a career in visual-based creative industries. These tools include mobile applications (apps)<sup>2</sup>, websites<sup>3</sup>, and freely available video-editing software<sup>4</sup>. Young, post-Millennial people are just entering HE, and the effect that their access to digital tools has had on their development is only just being investigated by researchers. The findings will contribute to the debate surrounding young people's digital skills and their use of digital technologies. This has become a topic of academic interest since Prensky (2001) first referred to young people as 'digital natives'. This research's contribution to knowledge is intended to inform educators in HE about the future educational needs of students of visual communication subjects.

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<sup>2</sup> Examples of Mobile phone apps used to create images include: Snapchat (Snap Inc., 2018), Snapseed (Google LLC, 2018), Adobe Creative Cloud Mobile Apps (Adobe, 2018)

<sup>3</sup> Examples of websites used to create advertising materials include: <https://spark.adobe.com> (Adobe, 2018), <https://www.Canva.com> (Canva, 2018), <https://www.PosterMyWall.com> (250 Mils LLC, 2018) <https://www.Piktochart.com> (Malaysia Incorporated Company, 2018), <https://biteable.com> (Biteable Pty. Ltd., 2018)

<sup>4</sup> Examples of free-to-download video-editing software include: Lightworks (EditShare EMEA 2018, 2018), Hitfilm Express (FXhome Limited, 2018), DaVinci Resolve (Blackmagic Design Pty Ltd, 2018)

### 1.5. Scope of the research

This research investigates the participants development of visual communication skills through their use of widely available digital technology. It focused on what the post-Millennial participants were learning while using these technologies, rather than how they were being taught. Specifically, the scope of this research was to investigate what the post-Millennial is learning about visual communication when they create images. It can be related to Vygotsky's (1978) work on the development of the child through play. The post-Millennial participants in this study were under-graduates in their first few weeks of under-graduate study for what is essentially a vocational degree. Prior to their enrolment, the images that they created were primarily for their own amusement, as a form of social engagement with their friends and family. Therefore, they were not thinking about the nature of the image as a corporate communication device but as a form of cultural currency. The act of them creating images for their own pleasure, can be compared to them 'playing' with the concept of visual communication. Koffka (Vygotsky, 1978) referred to this as "play reality" (p. 102). In contrast, he refers to the creation of images for professional purposes as "serious reality" (p. 102). Vygotsky believed that play was a leading factor in development, which helped to aid the transition from one level of understanding to the next.

As young people develop their visual communication skills, the digital technology they are using is the primarily the mobile phone (OECD, 2015). They use this technology to take and filter images that they then share on social media sites (OECD, 2015). The ubiquitous nature of this technology means that there are now more opportunities for the taking and sharing of images than that which was possible with older photographic technology such as analogue cameras. Before the availability of digital technology, photographs were taken on cameras and recorded on film, which had a maximum of thirty-six frames. These images were then sent away to a photographic laboratory to be processed and printed. When they were returned the images were usually shown to only a small number of people, and then often confined to a drawer or a photograph album. In the relatively recent past, the only images seen in the public domain were ones that had been taken by professional or dedicated amateur photographers or artists. These images were usually found in art galleries or in commercial artefacts such as advertising. In contrast, most of the images now available in the public domain have been produced by people with little, or no knowledge of visual communication principles, which are easily distributed on developing social media platforms.

Therefore, this thesis investigates the effects that the wide sharing of digitally-produced images is having on the development of young people's visual communication skills.

The scope of this particular research considers social media solely as a repository for these images. Therefore, discussion of the use of social media platforms by the post-Millennial participants in this research is not considered in any further depth. Similarly, digital marketing as a distinct discipline was also out of the scope of this research. However, some of the findings from this research indicate that further research into how social media is used for digital marketing purposes may be suggested.

## 1.6. Chapter Summary

This chapter sets out the scope of this thesis. The data subjects that were investigated by this research consisted of four groups of young people born between 1995 and 2000. This specific age group was chosen because they are the first cohort who have grown up in a world where the internet and other digital technology has always existed. The research investigated their use of widely available digital technologies in the production of visual communication artefacts. The research aim was to explore what visual communication skills they were developing as they used these technologies, and whether those skills are suitable for a career in visual-based creative industries.

Using a Cultural-Historical Activity Theory (CHAT) framework, as proposed by Engeström (1999), the relationship between the activities of four groups of post-Millennials in the production of visual artefacts were compared with the expectations of the creative industries and HE. The research focused primarily on the post-Millennials' use of digital technology, their consideration of traditional visual communication practices and principles, what they were learning through their use of widely available digital technologies, and the future needs of visual-based creative industries such as advertising and marketing.

The research's particular contribution to knowledge is an intention to inform educators in HE about the future educational needs of students of visual communication subjects.

## Chapter 2. Literature Review

### 2.1. Introduction

This research has been carried out in order to fill a gap in the on-going debate about the digital native. It investigates a hitherto un-explored area within the debate - that of the development of visual communication skills by post-Millennials via widely available digital technologies. This is a new area of study. Post-Millennials are only just entering HE, and the effects that digital technology may have had on them is only just starting to be considered. Therefore, the literature review brings together studies about the post-Millennials' use of digital technologies; research about the effectiveness of experiential learning; research studies about visual communication and visual perception; and contemporary debates on legal and ethical implications. All are pertinent to this study.

#### 2.1.1. Search strategy

To identify articles relevant to this study, a search was conducted through ERIC; JSTOR; Library, Information Science & Technology Abstracts; ScienceDirect; Emerald; and MLA databases using the following keywords: visual literacy, digital literacy, digital natives, new post-Millennials, visual communication, visual design, visual perception, digital media, higher education, experiential learning, copyright, and intellectual property law. The results were initially unrestricted in order to get a good overview of the subject and the issues to be considered. An unrestricted search at this stage provided an overview of historical and contemporary knowledge within the fields under investigation. The unrestricted search was followed by further in-depth searches, which were restricted to articles published after 2010. This was undertaken to uncover new thinking within the areas of visual communication that may have been discovered since the advent of some of the newer digital technologies, for example, the use of mobile technologies and mobile applications. It was essential to restrict the search because many of the technologies that young people are using were not developed until after 2010. Therefore, much of the earlier literature would not have considered their use in the development of visual communication skills.

#### 2.1.2. Selection criteria

Articles were selected based on the relevance of the text to the main focus of the research, which was to investigate the development of visual and digital experiences of young people. The search concentrated on peer-reviewed papers in academic journals, or critically acclaimed academic books that focused on one or more of the key topics.

The articles included both original English-language publications, as well as other-language translations so that an international perspective could be sought.

This thesis focuses on how the post-Millennial learner uses digital production tools in the creation of visual artefacts. Therefore, it was necessary to investigate what digital technologies young people are using, as well as how they are using them. Within this field, research studies that reviewed the access that young people have to digital technologies were considered relevant, as the use of different computer-based platforms such as mobile phones may have shaped the young persons' development of visual production skills. Furthermore, as the historical and cultural activity of the post-Millennial learner was a key aspect of this study, the effect that the digital divide<sup>5</sup> might have on their access to digital tools was also considered necessary and appropriate.

An investigation of post-Millennials' visual communication competences requires a solid understanding of how people are able to interpret three-dimensional objects when depicted in a two-dimensional image. Both physiological and psychological principles are used as we interpret how we see the world. A literature search considering this topic therefore needed to embrace of a wide range of disciplines including the science of 'seeing'. It also had to examine topics relating to human psychology - both visual and cognitive - semiotics, and aesthetics.

The legal implications that surround digital media production were considered; particularly, the knowledge and understanding that young people have of copyright laws. Digital production methods mean that it is possible to have immediate access to a wide range of materials that can be downloaded, manipulated and then re-uploaded and distributed an infinite number of times. It was therefore relevant to understand what the post-Millennial learners' current knowledge is of the ethical and legal implications of so doing.

Finally, as this study was looking at the ways that young people learn visual communication skills, especially in connection with HE, it was necessary to examine how people learn. Specifically, within the context of this study, how people learn through their collective and individual experiences – known as experiential learning was deemed essential. The researcher was considering whether learning was taking place during the post-Millennials'

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<sup>5</sup> The digital divide refers to the access to digital technology that different groups of people have. For example, those from a poorer background might only access computers through schools or libraries, thus restricting what they can do with the technology, whereas those with higher disposable incomes might have access to the latest technologies and software.

use of digital technologies. Within this area of learning, the relevant understanding that people have of their own competences was also examined.

The literature review has been separated out into four key areas:

1. Digital technologies and their use by post-Millennials
2. Teaching and experiential learning in the 21<sup>st</sup> century
3. Visual communication and visual perception
4. Legal and ethical implications of digital media production.

Each of these topics are discussed below, with comparisons and contrasts between the different views noted.

## 2.2. Digital technologies and their use by post-Millennials

Digital technologies and tools such as filters, used for the production of many visual communication artefacts posted online, are relatively nascent. They have developed alongside the post-Millennial learner since 1995, when the exponential growth of computer technology and the internationalisation of the Internet revolutionised how we communicate with each other (World Wide Web Consortium (W3C), 2005). The distribution of images, which are sometimes used for commercial purposes, is believed to have had a significant impact on the creative industries, particularly within the fields of advertising, marketing, photography, film, television, and other visual arts (Jenkins, 2009).

Young people are the predominant actors who post images online. This practice, which is often used as a form of social currency, has increased dramatically since 2010 (Rainie, Brenner, & Purcell, 2012). Such images include photographs and videos, which, researchers claim, were often created using the users' mobile phone. Many of these images have then been filtered, using in-built apps, prior to being uploaded to social media. Bakhshi, Shamma, Kennedy and Gilbert (2015) defined two sets of photographers who use filters: the *serious hobbyist* photographer and the *casual* photographer, who each used filters very differently. Their findings indicated that filters were used to enhance a photograph to make it more distinctive, thus improving its overall aesthetics. These enhancements tended to be restricted to increasing brightness, saturation, contrast and focus (Bakhshi, Shamma, Kennedy, & Gilbert, 2015, p. 15). They further reported that the *serious hobbyists* tended to use fewer effects and more subtle effects than the *casual* photographers. This may indicate that those with limited visual design and communication skills will use these

built-in effects to improve the visual aspects of their images, rather than learn how to take good photographs.

Chazan (2017) reported that widespread concern exists within the media that images are circulating that do not accurately represent the 'truth'. He explained how measures are being taken to legislate against the use of 'fake' imagery. Although not an academic research piece, the concerns expressed in that article indicated disquiet in the media. Distributing images that are to be used for commercial purposes, but which inaccurately represent the truth, might well create long-term problems for the creative industries as well as for the individual. This is more pertinent than ever as governments are starting to implement legislation to guard against 'fake' news and the use of manipulated images (Chazan, 2017).

As digital technologies have developed so, too, has the discourse around their use in education. In 2001, the concept of the 'digital native' was first introduced by Prensky (2001). He suggested that "the arrival and rapid dissemination of digital technology in the last decade of the 20th century" (p. 68), has changed the way that young people access information and gain knowledge and therefore potentially learn about their subject. However, this idea was challenged by later research which claimed that young people only used digital technologies in a superficial way (Bullen et al., 2009; Conole et al., 2006; Kennedy et al., 2007). The interpretation of statistics relating to the post-Millennial appear to confirm this view, indicating that young people tend to use computers mainly to browse the Internet, or to socialise with friends (OECD, 2015; OFCOM, 2008). If these findings are correct, young people may not be as capable in the use of digital technology as previously assumed, which could have implications for how and what HE educators teach them.

Prensky (2001) had suggested that it was "clear that as a result of this ubiquitous [digital] environment and the sheer volume of their interaction with it, today's students *think and process information fundamentally differently* from their predecessors" (original emphasis) (Prensky, 2001, p. 1). Until recently, educators generally accepted that there was a generation of young people who, due to their exposure to digital technologies, were intuitive users of digital technology. Prensky (2012) revised his work in light of further technological developments, yet still firmly believed that the future of education depended on our ability to listen and respond to young people, and to adapt to their changing (digital) needs. However, Prensky's idealistic view of the world of online education, which encompasses the belief that teachers should embrace the future and adapt, fails to consider the inter-personal nature of teaching and learning that cannot be fully replicated in a virtual environment.



Academics, including Bennett & Maton (2010) and Jenkins (2007), have challenged the concept of the digital native. Bennett & Maton (2010) argued that although young people may well be prolific users of information technology and digital media, they generally only use it at a cursory level. This is consistent with the findings of Bullen et al. (2009), Conole et al. (2006), Jenkins (2009), Kennedy et al. (2007), and OECD (2015). It was concluded that although these so-called digital natives are tech-savvy, they tend to use the Internet for entertainment and social purposes, rather than for education (Nielsen, 2014; OECD, 2015). Jenkins (2009) also suggested that educators should embrace the opportunities offered by digital technology, and the way in which young people use it, to facilitate learning.

Gallardo-Echenique et al. (2015) proposed a new term the 'digital learner', to replace the term 'digital native'. Their research, which was a systematic review of the current literature on the concept of the digital native, found that the widely held view of young people being digitally competent was not supported, and that there was no evidence that young people use these technologies for academic purposes (Gallardo-Echenique, Marqués-Molíás, Bullen, & Strijbos, 2015).

Lai and Hong (2015) found that the digital tools and equipment used by students in HE on a regular basis, were rather limited. Students tended to use laptops, the Internet, Google, MP3/iPod, Facebook, MySpace, and mobile technology such as phones. It was also noted that these students used digital tools differently from the ways suggested by digital native advocates, in that they tend to use them for social purposes rather than in the production of digital artefacts (Thinyane, 2010). Using digital technologies for social purposes by young people is an ongoing theme of contemporary discussion in the media. Wired magazine found that teenagers tended to socialise online more than they do face-to-face, (Twenge, 2017), a view concurred by boyd (2015).

There is a clear body of research that strongly indicates that young people are not using computers or other digital technology in the ways first suggested by Prensky (2001). If this is the case, then educators need, firstly, to be aware of how the post-Millennials are using digital technology. Educators should also assess whether any changes need to be implemented in the education of the post-Millennial, to compensate for any weaknesses in skills learned by them. However, much of the research has focused on those born before 1995. Indeed, when Prensky (2001) first coined the term 'digital natives', he was referring to people born in the late 1980s, not those born much later for whom digital technology has always been present. Furthermore, these studies indicate that although young people might

be fully immersed in digital technology, they tend to use it for personal social activities rather than in the pursuit of knowledge or for the creation of online content. Therefore, to add to the digital debate this thesis investigates those born after 1995.

The 'digital native' debate is now starting to be heightened by investigations into the similar yet distinct characteristics of those born somewhere between the mid-1990s to 2010s. These young people are often referred to as Generation Z, iGen or post-Millennials (Combi, 2015). As the first cohort of true digital natives, they have never known a world without the Internet or mobile technology (Vandewater, et al., 2007). They are growing up surrounded by digital and online media, from which they can download information about an endless array of subjects (Combi, 2015). Widespread use of mobile phones, smart boards in schools, the Internet, digital television and other digital technology have all been found to be fairly commonplace for this group of young people (Nielsen, 2014).

The roles that gender, race, location and socio-economic background play must also be considered in relation to how young people access technology. Studies have started to emerge which show that, even in economically advanced countries, access to technology for young people is uneven (boyd, 2015). It is therefore inaccurate to imply that all, or most, young people are surrounded by, and immersed in, digital technologies (Brake, 2013; Bullen et al., 2009; Bullen et al., 2011; Conole et al., 2006; Kennedy et al. 2009; Margayan Littlejohn & Vojt, 2011). Alongside this factor lies the problem brought about by the digital divide, which refers to the access that specific groups of people, such as those from lower social classes, have to digital technologies, and how their level of access will affect the knowledge and understanding that these young people have of newer digital production methods (Brake, 2013; Mardikyan et al., 2015).

Van Dijk (2012) discussed the influence that the digital divide has on the production of content. He argued that just because a person had access to the technology required to produce digital content it does not mean that they will do so. Furthermore, if young people only have access to limited digital technology, such as a mobile phone, then they will only have access to mobile phone applications, which will naturally restrict what they can produce. Mobile apps such as Snapchat or Instagram tend to have pre-set functions known as filters.

Brake (2013) brought together existing studies by Bruns (2008), Leadbeater (2007), and Ritzer & Jurgenson (2010), that had analysed the prevalence of Online Content Creation (OCC) and those who had focused on OCC's collaborative nature also known as Web 2.0.

Other studies, by Bruns (2008), Jenkins (2006) and Leadbeater (2007), analysed the effects that social standing had on OCC. Brake (2013) found that the vast majority of OCC was produced by users who were middle-class, white, males of a high social standing, such as those with college or university education, whom he referred to as the 'privileged minority'. Brake's interpretation of what constituted OCC included posting message in chatrooms, using peer-to-peer file sharing sites, as well as the creation of websites, creating and posting videos, writing blogs, and participating in online social media sites. His findings correlate with other studies which show that young people use the Internet for browsing and for social purposes. Brake's study looked at how the digital divide was affecting the production and dissemination of online content. Therefore, there may be implications for the formation of ideas if OCC is driven by a particular sector of society which might be seen as opinion leading. As a consequence of his research, Brake (2013) suggested that any future analysis needed to "take into account [the] differing nature, intensities and potential benefits and drawbacks" (p. 604) of online content creation practices and tools, which is in concordance with the focus of this thesis.

Gender differences were studied by Hargittal and Walejko (2008) who found that males were far more likely to create general online content, which ranged from blogs, to other creative content such as video mash-ups, music and fan-fiction. There was little difference in male and female participation in the creation of online content. However, there were considerable differences in the types of online content that they created. Just over a quarter of women (27.4%) reported creating music, whereas 42.6% of the men engaged in this activity. Similarly, fewer than one in five women (16.9%) reported creating film or video, compared with over a quarter (26.6%) of men sampled. Furthermore, it has also been found that young females are the most likely to create images to post in social media (OECD, 2015).

In the ten years since Hargittal & Walejko conducted their study, there have been significant developments in the digital world. At the time of that study, many of the participants in the survey groups for this research were only just getting access to computer technology and the internet. Since then, the development of smart phones and mobile apps have revolutionised image creation, with young people often being the first to take up these technologies.

The research conducted by Hargittal and Walejko (2008) is indicative of a digital divide, which may affect the rules by which creative content is judged. Jenkins (2006) also expressed concern, at that time, that the "disproportionately white, male, middle-class and college-educated" (p. 23) will continue to dominate the media industries and that the practices that

they adopt will become mainstream. However, that does not seem to have been the case, as many females appear to have developed digital production skills often as a form of social currency (OECD, 2015; Rainie, Brenner & Purcell, 2012).

A number of studies have observed how older generations, such as Millennials, interact with digital technology (Bullen et al., 2009; Conole et al., 2006; Kennedy et al., 2007). However, there is little research that has explored how young, post-Millennial, people, who have grown up with the Internet, use their digital experiences and online resources in the pursuit of knowledge, particularly in the design and production of images. It is this gap in knowledge that this research investigates.

### 2.3. Teaching and experiential learning in the 21<sup>st</sup> century

In a traditional pedagogical learning environment, the learner is dependent on the teacher to be responsible for their learning. Consequently, the teacher assumes full responsibility for the learners' learning. In HE, as learners develop, this pedagogical approach is mixed with an andragogical approach to learning where the learner starts to become responsible for their own learning (Knowles, 1975).

In an under-graduate Advertising programme, most learners come to the subject with no previous experience in the creation of professional advertising materials. The Advertising programme often focuses on developing students' skills and experiences in advertising with the goal being to secure work in this highly creative and visually-dependent industry. These, fairly, clear-cut objectives are what Houle (1961) describes as 'goal-orientated' learning objectives – i.e. to pass their degree and get a good job. In this type of learning, the experiences of the tutor are used to bridge the gap between what the students already know, and what they need to know to become professional advertisers. In a pedagogical approach, the teacher takes full responsibility for the students' learning, determining what they need to learn, how they will learn it, and examines whether or not it has been learned (Knowles, 1980, p. 43).

However, the post-Millennial learner already possesses a wealth of experience in the production of visual communication artefacts due to the ubiquitous availability of digital production tools. Their experiences in the use of digital media might lead one to assume that a more andragogical approach to their learning may be required (Knowles, 1980). Therefore, an emphasis on experiential learning that taps in to the richer resources and experiences that the post-Millennials possess might be suggested (Knowles, 1980, p. 50).

However, there are other factors to consider, such as their personal motivation for learning, which may have been influenced by external pressures such as those exerted on them by society and parents (Mezirow, 2000). In contrast, these motivations would suggest a pedagogical approach to learning is still required.

From the educators' perspective this balance between pedagogy and andragogy is further compounded by the post-Millennials' other approach to learning as demonstrated by the participants in this study, that of heutagogy (Blaschke, 2012; Canning, 2010). The participants in this research demonstrated a high-degree of self-directed learning. While the teacher provided access to some resources, the learners decided that there were other, potentially more effective for them, educational, online resources that they utilised. This, too, is consistent with an andragogical approach to learning. Adults tend to prefer to seek out help from people who have not been trained as teachers (Knowles, 1980, p. 42). In both andragogy and heutagogy, building a learner's confidence and encouraging them to actively share their experiences and knowledge is a key feature (Canning, 2010; Knowles, 1980). It was found that the participants' self-efficacy allowed them to use the tools (*instruments*) in novel ways. Therefore, the over-confidence perceived in the participants of this study might in fact be a demonstration of the post-Millennials' high-degree of an inherent ability to learn in more creative ways.

In today's knowledge-based society, the pursuit of knowledge and information is the key to economic growth (OECD, 1996). It has been suggested that the rise in Massive Open Online Courses (MOOCs) and other online learning courses might change the role of the teacher for good (Downes, 2009). For the learner, the ability to easily access information about a wide range of subjects, at a time and place of their own choosing, gives them the opportunity to direct, and stay in control of, their own learning. Therefore, it is prudent to consider how people learn, especially through their own experiences, in order to gauge whether the use of the Internet, and increasing access to online information, is likely to have an effect on what the post-Millennial is learning.

Experiential learning, or learning through experience, was discussed by Kolb (2015). Kolb's (2015) experiential learning cycle drew heavily on the work of John Dewey (1859-1952), an American philosopher and education reformer. Dewey's learning theory refers to how the artist will keep shaping and re-shaping what they have done until they are satisfied (Dewey, 1934). Dewey refers to education as growth: "Only when development in a particular

line conduces to growth does it answer to the criterion of education as growing” (Dewey, 1938, p. 36).

Other relevant educational theories appropriate to this study include Piaget’s (1896-1980) constructivism, and Vygotsky’s (1896-1934) Zone of Proximal Development. Constructivism allows students to draw on their own beliefs and ideas about a topic. Those beliefs are then examined, tested and integrated with more refined ideas about the topic by the student. When placed into the context of this study, this viewpoint could mean that young people are inferring that when someone ‘likes’<sup>6</sup> their pictures, they have been well produced and constructed. They receive feedback from their friends in the form of a number of ‘likes’ that reinforce the young person’s belief that their ability to produce images is good. However, the person who has responded to their image may have liked the image for entirely different reasons. This could also mean that the creator of the image may develop misplaced confidence in their ability to produce effective visual communication materials.

Vygotsky’s theory of the Zone of Proximal Development (ZPD) considers the cultural and social context of the individual learner within a community of learners. The theory explains how more knowledgeable members of their community mentor the learner through to a more expert stage of independent performance (Vygotsky, 1978a). Vygotsky’s work can be applied to the subjects observed by this research, to situate the phenomenon in the context of post-Millennials’ learning visual production skills through their use of digital and online media. Higher-ranking people within the post-Millennials’ communities might be considered to be opinion leaders within the group. Consequently, an opinion leader’s viewpoint might rank higher than other, more knowledgeable members of the group. This could sway the ideas and beliefs of other, lower-ranking members of that group, which could in turn affect how they think about the images that they are producing and posting. This effect can be seen when people re-post controversial images without fully understanding the significance of the original image (Landers & Masters, 2017).

Even if one believes that young people, who are used to consuming and creating digital visual materials online, are learning some visual literacy skills through their experiences of interacting with them, it is yet to be discovered whether those skills are suitable for the

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<sup>6</sup> The term ‘liked’ is used to represent the ‘like’ buttons used in social media sites such as Facebook or Instagram. It denotes that someone has engaged with your post. It does not necessarily mean that the image is truly liked by the person who has interacted with the post by clicking the ‘like’ button, as it can be used to mean ‘I agree’, ‘I understand’, ‘sympathy’, ‘respect’, or be used as a form of encouragement or support.

professional world. Murray (2008) argued that the:

Use of digital photography, as represented on Flickr, signals a shift in the engagement with the everyday image that has to do with a move towards transience and the development of a communal aesthetic that does not respect traditional amateur/professional hierarchies (p. 151).

The use of sites such as Flickr and Instagram are popular with young people, with more than half of Instagram users being under the age of twenty-nine. Murray's suggested move towards a "communal aesthetic" relates to the work of Vygotsky, as it can be inferred that members of the groups naturally support each other as parts of a social community. It can also relate to the CHAT framework used in this research, as the CHAT framework considers the communities involved in the production work in each of the focus groups.

As young people are used to using mobile phones, the Internet and social media (OECD, 2015), they are also developing skills in the use of those digital media technologies. The learning of those skills is a form of experiential learning, as they receive feedback from their peers and reflect on it, which may reinforce their belief that they are creating visual artefacts that are liked by others. However, this does not mean that post-Millennials have developed the visual communication, or visual perception, skills that are appropriate for the professional environment. This could lead to disappointment, frustration and disillusionment in HE students. Visual perception requires not only the development of visual acuity, but also the ability to construct and deconstruct the signs and symbols found within an image, which is discussed in the next section.

#### 2.4. Visual communication and visual perception

The use of online and digital media in the development of visual artefacts is a relatively new area. Consequently, there are few studies on the topic of developing visual design skills through the use of these new digital media technologies. A broader literature search was therefore carried out to find studies that have investigated the broader contexts of the topic of visual perception. This area has been studied, in depth, over thousands of years: early accounts date back to the time of Plato and Aristotle.

Literature for the wider study of visual psychology and perception, and the science of how we see, was therefore also reviewed to find out what is known about how we decipher images.

The ability to interpret visual messages is governed by the physical ability of our eyes to receive light from a given object or collection of objects, as well as of our brain in order to make sense of the images received. The ability to make sense of the visual world is known as visual perception. The topic of visual perception is underpinned by a number of disciplines such as visual psychology and semiotics, as well as by an individuals' historical and cultural perspectives. Many studies determined that the development of visual communications skills and literacy is a learned skill (Arnheim, 1974; Barry, 1997; Derogowski, 1989; Felten, 2008; Foss, 2004; Gregory, 1994; Messaris, 1994; Parsons, 1987; Sacks, 1995).

Visual perception is a naturally occurring phenomenon for most people. However, Gregory (1994) and Sacks (1995) both describe the experiences of people, blind from birth, who gained the use of their eyes after a lifetime of no sight. They report that patients who had had surgery to correct physical defects in their eyes were still effectively unable to interpret the world through their sense of vision, even though their eyes were fully working. They needed intervention to help them learn how to see. Further research with cultures who were unused to viewing objects in two dimensions, demonstrated that they struggled to decode images, or to recognise objects in a two-dimensional image (Derogowski, 1989). The cases described by Derogowski (1989), Gregory (1994), and Sacks (1995) demonstrate that the act of seeing is a learned skill that is based on our personal contexts. Although the studies of Gregory (1994) and Sacks (1995) based their reasoning on viewing objects in the real world, there is enough evidence within their observations to determine that the art of seeing requires not just the physical ability to use our eyes, but also the ability to use our brain to interpret what we see. Derogowski's (1989) observations confirm this; the groups he discusses needed to be specifically taught how to interpret the two-dimensional images that they were seeing for the first time.

According to Arnheim (1974), when we look at the physical world, we consider a number of factors in determining what it is that we are seeing. The positioning, psychological and physical balance, shape and form, movement dynamics, and light from the object enter our visual cortex and are decoded by our brains. When we are looking at two-dimensional images we draw on the same set of skills that we use in the real world to make sense of an image (Arnheim, 1974). This two-part process, the function of light on our eyes, and the decoding of the image that is formed by our brains, draws heavily on what we have seen before, and in what context, in order for us to make meaning. Arnheim (1974) claims that the visual knowledge that we have is based in time and experience. This claim was supported by the



findings of Derogowski (1989), Gregory (1994), and Sacks (1995). Creating images that are viewed from a particular perspective in relation to shape, form, balance, space, light and movement is one way in which we can encode particular meanings (Arnheim, 1974). Arnheim uses the example of a triangle, which, if seen from different angles, could be equally interpreted as a line, a quadrilateral triangle, or a right-angled triangle. If the triangle needs to be interpreted as a specific type of triangle it needs to be presented in a particular way. He called this 'visual rightness theory'. Visual rightness theory proposes that there is a right and a wrong way to produce images, and that people inherently 'know' whether an image looks right or not (Arnheim, 1997).

An example of the misinterpretation of images can be found in memes<sup>7</sup>. Memes are visual communications that are composed of images that have been 'cut and pasted' and combined with (usually) humorous text to form a discursive approach to topical issues. These images use similar visual styles, including the choice of typeface (usually the typeface - *Impact*) and are easily created online through a number of meme generator websites such as <https://imgflip.com> and then widely circulated through online social networks. Huntingdon (2013) investigated whether Internet memes could be classed as a form of visual rhetoric, as their use is often related to topical themes. Memes rely heavily on intertextuality, which draws references from other pre-existing media texts, allowing the reader of the text to make a cognitive connection with an earlier text (May, 2009). They are used to communicate feelings about political subjects, often to make fun of the topic. For example, a number of memes have circulated on Facebook of Syrian refugees with smartphones. Many of the images are accompanied by captions such as, "Hey, those people fleeing war in Syria aren't poor at all! Look, they all have smartphones!". They have been created by people who have never been in the position of the refugees, and who only see things from their own perspective (O'Malley, 2015). A deeper investigation into why the refugees have smartphones reveals that they are necessary tools that they use to help them to navigate their exodus, and to keep them informed of dangers. The phones are considered by the refugees as important as food and water (Gillespie, Osseiran, & Cheesman, 2018). The creation of memes allows people to transfer ideas quickly and easily, and to gain instant recognition and feedback for their work. The creation, dissemination and spreading of memes can thus reinforce a person's belief in their creative ability.

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<sup>7</sup> A meme is a reused image that has been repurposed to have contemporary meaning and which is spread by online media

The use of images as visual rhetoric was discussed by Foss (2004) who said, "Visual rhetoric is symbolic action in that the relationship it designates between image and referent is arbitrary, in contrast to a sign, where a natural relationship exists between the sign and the object to which it is connected" (p. 305). Foss is therefore also implying that, as with other languages, the skills required to produce effective visual communication must be learned, so that the signs denoted in a communication can be used in a way that allows others to effectively decode the message. However, Hattwig et al. (2013) concluded that although visual literacy was essential for 21<sup>st</sup> Century learners, many students were not competent in visual literacy and would require help to become so. They claimed that; "appropriate use and production of images in academic work appear to be a challenge for many students" (p. 65). Hattwig et al.'s report offers a set of tools, the *Visual Literacy Standards*, to help educators develop visual literacy skills in students of HE (Association of Colleges and Research Libraries (ARCL), 2011).

One might also understand images by looking at the ideas used by the creator of the image. The subject matter, its texture, shape and form, or emotional expressiveness can also convey meaning (Parsons, 1987). Parsons refers to a sequence of aesthetic development that is dependent on an individual's previous visual encounters with images. This implies that the aesthetics of an image are subjective, as people can respond very differently to the same image (Parsons, 1987). His work was based within the context of cognitive development theory, which places it very much within the field of a learning experience.

The concept of the image used as representation was discussed by Debord (1967) who argued that in advanced capitalist societies, the accumulation of the representation of wealth become 'spectacle' where, "all that once was directly lived has become mere representation" (Debord, 1967, Thesis 17,42). This 'spectacle' is more than a mere collection of images; it is a social relation between people that is mediated by images (Debord, 1967, Thesis 4). The 'spectacle', which according to Debord is the core feature of advanced capitalist societies, manifests in mass-media communications such as advertising and marketing (Debord, 1967, Thesis 24). Although Debord developed his concept before the digital age, it can be applied to the images used by people in social media spaces to represent the relationship between people. Images used on social media tend to represent an individual's world as they would like others to see it; their social media profiles become hyperreal (Baudrillard & Glaser, 1994) versions of themselves. For the post-Millennials who

use computers to browse the Internet, and to socialise with friends (OECD, 2015), the concept of the 'spectacle' is especially relevant.

Visual literacy is the ability by which people are able to interpret images and decode them. In our increasingly visual-rich world it has become necessary for people to have a high level of visual literacy in order to effectively understand visual communications. Digital natives were described by Oblinger and Oblinger (2005), as intuitive visual communicators who are "more visually literate than previous generations" (p. 16). This implies that their exposure to the visual image through digital technology has developed their visual communication skills further than, or in different ways to, their predecessors. However, Felton (2008) challenged this view by saying that "living in an image-rich world ... does not mean students (or faculty and administrators) naturally possess sophisticated visual literacy skills, just as listening to an iPod does not teach a person to critically analyze or create music" (p. 60). Felton (2008) developed this opinion further by adding that although visual literacy is taught in earlier years of education "HE makes at most a passing reference to visual literacy considerations, in effect treating images as mere illustrations and ignoring the myriad of ways people make meaning by combining visuals and texts" (p. 62). These views correlate with the observations of Arnheim (1997), Derogowski (1989), Gregory (1994), Parsons (1987), and Sacks (1995), which indicated that the development of visual design skills is a process of cognitive development, and which therefore needs to be explicitly taught. They cannot be picked up just by observing visual materials.

Even for those who are used to looking at images, an analysis and evaluation of the visual artefact is required to determine the intentions of the communication purpose. As Messaris (1994) postulated, an image might consist of an "invisible style" (p. 164) of editing and therefore be illusory. Consequently, competency in visual literacy is required. Messaris (1994) concluded that the understanding of visual imagery that has been manipulated "does not come naturally to most people [and]... appear[s] to rest on exceptional experience or on explicit training" (p. 164). He further determined that visual literacy does not just consist of the act of viewing images, it also involves the ability to identify not only the objects denoted in the image, but also the relationship between these objects. The interpretation of an image therefore requires a "degree of explicit awareness about the processes by which meaning is created through the visual media", which includes "some degree of self-consciousness about their [the reader of the image] role as interpreters" (Messaris, 1994, p. 135). He went on to say that, "the ability to make these kinds of interpretations requires an explicit

understanding, rather than merely a tacit grasp, of principles of visual composition and juxtaposition” (Messaris, 1994, p. 164). These principles include gestalt psychology (Wertheimer, 1938), which works on the belief that an image is more than just the sum of its parts. Gestalt principles consider elements such as pattern, figure and shape in the construction of visual communication. The principles of visual communication also include semiotics - the study of signs and symbols, which enable people to see the relationships between individual elements that make up any form of visual communication.

Semiotics and the way that signs and symbols make meaning for people (Eco, 1976; Harrison, 2003; Hoopes, 2014; Kress & Van Leeuwen, 1996; Messaris, 1994; de Saussure, 1959) was therefore also considered in this research. Semiotics describes how individual signs are used to communicate by the use of the signifier (what is actually seen) and the signified (what meaning is made from the signifier). The understanding of any sign is dependent on the mutual understanding of the coder or creator of the sign, and the decoder or reader of the sign. If there is disharmony between the two, there lies the potential for miscommunication. Therefore, an understanding of the cultural and historical backgrounds of the reader of the sign is necessary for the coder to be able to communicate effectively (Eco, 1976; de Saussure, 1959; Harrison, 2003; Hoopes, 2014; Kress, & Van Leeuwen, 1996; Messaris, 1994).

To examine the visual literacy skills of the post-Millennial learner, Brumberger (2011) conducted a survey of around five hundred undergraduates. The survey asked students to respond with an assessment of their own visual literacy skills. It posed questions related to their ability to use technology such as digital cameras and video cameras, along with editing and image production software. To be able to properly assess their visual literacy, Brumberger used the definition given by enGauge 21st Century Skills (Cheryl, 2002) that defines visual literacy as “The ability to interpret, use, appreciate, and create images and video using both conventional and 21st century media in ways that advance thinking, decision making, communication, and learning.” (p. 15).

Brumberger’s survey was administered through a web-based survey tool, and used statistical methods to analyse the results. Those results indicated that students were no more able to use digital technology than their pre-digital cohorts. Brumberger concluded that, “The data indicate clearly that the survey participants are far from adept at producing and interpreting visual communication.” (p. 44). Her results contrasted with Prensky’s findings (2001) who said that digital natives now “think and process information fundamentally differently from their predecessors” (p. 2). It also conflicted with Oblinger and Oblinger’s findings, which

claimed that young people were “intuitive visual communicators” (Oblinger & Oblinger, 2005, p. 2.5).

Although Brumberger’s survey indicated that digital natives used technology, it also found that the participants tended to use it in a superficial way. Furthermore, the study subjects did not demonstrate confidence in either the production of digital visual materials or the analysis of images. She concluded that “mining information from images does not appear to be a strength of the survey participants” (Brumberger, 2011, p. 41). Brumberger’s study therefore indicates that digital natives do not possess the high degree of visual literacy suggested by Prensky (2001) and Oblinger & Oblinger (2005). Rather, they are “far from adept at producing and interpreting visual communication” (Brumberger, 2011, p. 41).

The key theme that developed from the literature review indicated that visual literacy and the use of visual communication is a learned skill (Arnheim, 1974; Barry, 1997; Deregowski, 1989; Felton, 2008; Foss, 2004; Gregory, 1994; Messaris, 1994; Sacks, 1995). However, although young people have greater access to digital images, they often lack the knowledge and or ability to effectively create visual communication materials (Brumberger, 2011; Hattwig et al., 2013; Murray, 2008). These studies contrast with the research of Prensky (2001) and Oblinger & Oblinger (2005) who implied that the new generations of students were not only competent users of technology, but also visually intuitive users and creators of visual materials.

Furthermore, like language, the syntaxes used in image production and interpretation need to be expressly taught, so that both the producer and the end reader of the image can understand the codes that are at work within the image (Atkin, 2013; Eco, 1976; Harrison, 2003; Kress & van Leeuwen, 1996; de Saussure 1959). The specific gap in knowledge identified by the review of this set of literature suggested that further research was needed to examine visual communication production and analysis skills through a more hands-on study (Brumberger, 2011).

The literature review of visual communication topics also highlighted issues surrounding the legal and ethical implications of image creation, and the sharing of online imagery, next discussed.

## 2.5. Legal and ethical implications of digital media production

The culture of Web 2.0<sup>8</sup> technology actively encourages the spreading of information and resources. Essentially, that is why it is so successful. However, all content available on line has been created by someone, and is therefore subject to copyright and intellectual property laws. While some creators are happy for others to use their materials, many are not.

A report written by Ruth Towse (2016) collated views discussed at three CREATE sponsored events on the future of the creative economy in a digitised world. Concerns were raised about the dangers of ‘piracy’ reducing the incentive to produce creative content. However, it was also recognised that there had actually been an “explosive growth in the number of creative products” (Waldfoegel, as cited in Towse, 2016, p. 5). Other pertinent discussions focused on the monetisation of creative content and the opportunities afforded by increased opportunities for independent content creators (Towse, 2016). The reduced costs, afforded by the easy reproduction and dissemination of creative products online, mean that independent producers are no longer at the mercy of large media corporations. A reduction in the monopoly held by media organisations, may subsequently reduce their incentive to invest in high-cost, high-quality media products (Towse, 2016). Furthermore, much of this new, creative content takes advantage of Web 2.0 technology and often involves the use and re-use of existing media content (Jenkins, Ito, & boyd, 2016).

Palfrey, Gasser, Simun & Barnes (2009) examined the disconnect between what is technologically possible and what is legally or morally acceptable. They found that many young people had little or no knowledge about how intellectual property laws affected them and what they do online. The availability of a vast amount of online resources had led most of the young people they interviewed to assume that the resources were freely available, with many believing that if it was on Google it was free. “Growing up in a world in which so much information is readily available for free and where ignorance (or defiance) of copyright law is pervasive, digital natives often understand the free availability of content—including copyrighted content—as the norm” (Palfrey, Gasser, Simun, & Barnes, 2009, p. 9).

Palfrey et al. (2009) found that this situation had resulted in “the emergence of a culture in which social norms surrounding the consumption and distribution of digital content have strayed far from what the law requires.” (p. 3). Those interviewed recognised that illegal downloading of some media, such as music and video, might have consequences. However,

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<sup>8</sup> Web 2.0 refers to the development of collaborative and interactive Internet technologies, such as Wikipedia and social media websites

many believed that the internet was impossible to police, and that they would not get caught. If there were no consequences to their actions, they would continue with them.

A report from the NUS (2012), examining students' understanding of Intellectual Property (IP), found that the few students had IP or copyright laws explicitly taught to them either prior to or during their university programmes. Yet, overwhelmingly, most students believed that it was important to their education (83%), as well as to their future careers (79%) (NUS, 2012, p. 36). Of those that had IP included as part of their course, the most common aspect was in connection with plagiarism (73%), rather than copyright (35%) (NUS, 2012, p. 26). Students in this survey indicated that they wanted IP to be covered, specifically those relevant to their studies and future careers, and for it to be covered within the first year of their university programme (NUS, 2012, p. 39).

If we consider that young people, who are used to consuming and creating digital visual materials on line, are learning some visual literacy skills through their experiences of interacting with them, it is yet to be discovered whether those skills are suitable for the professional world. Murray (2008) argued that the "use of digital photography, as represented on Flickr, signals a shift in the engagement with the everyday image that has to do with a move towards transience and the development of a communal aesthetic that does not respect traditional amateur/professional hierarchies" (p. 151). The use of sites such as Flickr and Instagram are popular with young people with more than half of Instagram users being under the age of twenty-nine (Perrin, 2015).

In an attempt to clarify copyright laws, the EU Copyright Directive sought to legislate against online platforms that allowed users to upload copyrighted images (European Commission, 2016). Article 13 of the Directive says online service providers should put in place "effective content recognition technologies" that detect and remove copyrighted content (European Commission, Chapter 2, Article 13.1, 2016). In August 2018, campaigners stopped this legislation from being passed, claiming that Article 13 of the Directive would destroy the Internet and increase censorship by large companies and governments (Sky News, 2018). This EU proposal is still under negotiation.

In today's networked society, there exists a greater emphasis on the use of images to communicate messages and ideas quickly, compared with pre-Internet years. Fake news and images are prolific online, and are often distributed in the form of memes (Ng, 2018). Memes are easy to produce and are often used as a form of visual rhetoric (Foss, 2014; Huntingdon, 2013; May, 2009). Memes also serve the needs of the online service providers, in whose

interest it is to keep people on their websites; “Facebook wants to feed us stuff with high meme potential; thus, it studies what kinds of stories – from which friends? On which subject? – users tend to click more often.” (Morozov, 2013, p. 158).

These reports indicate that IP and copyright needs to be explicitly taught to students (NUS, 2012; Murray, 2008; Palfrey, Gasser, Simun & Barnes, 2009). However, many young people believe that media available online is free for them to download for their own personal use (Palfrey, Gasser, Simun & Barnes, 2009). Copyright laws are developing to adapt to the changing needs that have arisen due to the digitisation of media. However, those changes have not yet been implemented and confusion about what is possible to use and re-use, and what is not, exist (Kretschmer, Meletti, & Singh, 2018; NUS, 2016). It is therefore necessary for lecturing staff to make the current legislation clear to students (NUS, 2016). In general, one over-riding principle endures, which is that, “copyright protects only the expression of ideas, not the ideas themselves” (Meletti, 2018).

## 2.6. Chapter Summary

The literature highlighted that although young people might have greater access to digital technologies than previous generations, they mainly use them for social purposes and to browse the Internet (boyd, 2015; OECD, 2015; Thinyane, 2010; Twenge, 2017). Young people appear to use digital tools in a superficial way (Bennett & Maton, 2010; Bullen et al., 2009; Conole et al., 2006; Kennedy et al., 2007; Lai & Hong, 2015). Furthermore, just because people had access to digital technologies to produce digital media it did not mean that they would necessarily do so (Van Dijk, 2012). That said, the main group of people who create images that are posted online were found to be young people (Rainie, Brenner & Purcell, 2012). The images uploaded to the Internet by those young people were often created through the use of their mobile phones (Rainie, Brenner & Purcell, 2012). Those images were usually heavily filtered through in-built apps prior to uploading them to social media (Bakhshi, Shamma, Kennedy & Gilbert, 2015). Despite this, it was found that young people often lack the knowledge and ability to create effective visual communication materials (Brumberger, 2011; Hattwig et al., 2013; Murray, 2008).

Gender differences in the production of online content was highlighted by Hargittal and Walejko (2008) who found that fewer females than males tended to create fewer media products, for example, videos and music. This is indicative of a digital divide. The online content created by young people, including images, tended to be the reserve



of the privileged classes (Brake, 2013), and involves the use of basic online tools (Huntingdon, 2013).

These studies contrast with the research of Prensky (2001) and Oblinger & Oblinger (2005) who implied that the new generations of students were not only competent users of technology, but also visually intuitive users and creators of visual materials. Jenkins (2009), expressed concern that a lack of underpinning knowledge about how images communicate messages might have a significant impact on the creative industries, especially advertising and other visual based media industries. This view has been echoed by the media (Chazan, 2017).

Regular, positive feedback from peers can reinforce a person's belief that what they are doing is right (Kolb, 2015). Young people reflect on the quality of their posted images based on the number of 'likes' an image receives from their friends. The images that are not liked are often removed. The style of the images that are liked are imitated and refined. As they shape and re-shape their images they are developing image production skills (Dewey, 1934). However, Murray (2008) argued that it was yet to be discovered whether those skills were suitable for the professional world. Vygotsky (1978a) found that people with higher social rankings can sway the opinions of others in lower social ranks, which could mean that young people are more likely to react positively to the views of people with large numbers of followers such as celebrities and their friends, rather than heed the advice of lecturers or professionals.

Furthermore, it has been suggested that the rise in online learning courses, including wide availability of freely downloadable learning materials, might change the role of the teacher for good (Downes, 2009). Access to a wide range of information and knowledge online could compromise the traditional role of the teacher as gatekeeper of knowledge (Kop & Bouchard, as cited in Thomas, 2011). However, in a knowledge-based society, the pursuit of knowledge is key to economic growth (OECD, 1996).

The literature for visual literacy and the use of visual communication indicated that the ability to see is a learned skill (Arnheim, 1974; Barry, 1997; Deregowski, 1989; Felton, 2008; Foss, 2004; Gregory, 1994; Messaris, 1994; Parsons, 1987; Sacks, 1995). The development of visual acuity, to enable the effective construction and de-construction of image, takes time, and is based on our personal experiences (Arnheim, 1974). Visual rightness theory, as proposed by Arnheim (1974), claimed there is a right and a wrong way to produce images. Understanding and interpreting the messages in an image requires specific skills in the

decoding of signs and symbols (Eco, 1976; Foss, 2004; Harrison, 2003; Hoopes, 2014; Kress & Van Leeuwen, 1996; Messaris, 1994; de Saussure, 1959), but these skills appear to be lacking in young people (Brumberger, 2011; Hattwig et al., 2013). The use of digital production skills means that many images have an invisible form of editing that the untrained eye finds hard to detect. Therefore, a high level of competency in visual literacy is required to be able to correctly interpret them (Messaris, 1994). Young people are posting images online, (Rainie, Brenner, & Purcell, 2012), that are representing how they would like to be perceived by others. Therefore, Debord's (1967) discussion on the 'spectacle', although written before the digital age, still has relevance today.

The literature also indicated that many young people appear to have little understanding of copyright and intellectual property laws and tend to believe that they can use whatever is available online to their own ends (Palfrey, Gasser, Simun, & Barnes, 2009). Many young people who are using digital technologies appear to have little understanding of copyright and intellectual property laws, believing that they can use whatever is available online to their own ends (Palfrey, Gasser, Simun & Barnes, 2009). That said, most undergraduates would like IP and copyright legislation to be explicitly taught to them, with relevance to their particular studies (NUS, 2012). Discussions on the effects that digital media is having on the creative media industries has specifically focused on the monetisation of creative content (Towse, 2016). Web 2.0 technology, often used by post-Millennials, involves the use of existing media content (Jenkins, Ito, & boyd, 2016). Subsequently, concerns have been expressed about how piracy may reduce the incentive of larger media organisations to produce high-quality media products (Waldfoegel, as cited in Towse, 2016).

The literature review found relevant research about the Net Generation or Millennials. However, little has been found about investigations into how the new wave of digitally savvy users, who have never known a world without the Internet, use digital and online resources to learn visual design skills. Brumberger (2011) suggested that further research was needed to examine the visual communication production and analysis skills of young people through a more hands-on study. This research aims to address that gap in knowledge.

## Chapter 3. Methodology and Research Design

### 3.1. Introduction

The main motivation for undertaking this research was found within the researcher's own professional practice, as a lecturer of visual communication and digital design within a UK university. The apparent paradox concerning post-Millennials' lack of appropriate digital skills, as exhibited by incoming cohorts, was found to be one exhibited throughout a number of higher education establishments. Therefore, it was important that the research participants were recruited not only from within the environment of HE, but also within the curriculum areas of visual communication and digital design.

### 3.2. Philosophical Approach

Several philosophical approaches to the problem were considered. Although the objectivity of the positivist approach held some interest, it was excluded as it can only be applied to measurable, observable data. That approach excluded some human behaviour, such as how people learn (Cohen, Manion & Morrison, 2007). Post-positivists, by contrast, "...still hold beliefs about the importance of objectivity and generalisability, but they suggest that researchers modify their claims to understandings of truth based on probability rather than certainty" (Mertens, 2014). The use of a post-positivist approach would, therefore, enable the use of an experimental design to establish the effectiveness of teaching visual design skills to undergraduates. However, it could not explore the students' experiences of how they learn to develop those skills, which was crucial to this study.

The constructivist, interpretivist ontological stance considers reality to be "...intangible mental constructions, social and experientially based, local and specific in nature" (Guba & Lincoln, 1994, p. 110) with each individual having his or her own view of what is reality. Therefore, as the aim of the inquiry was to understand the assumptions that the inquirer as well as the participants holds, a constructivist, interpretivist research approach was considered most appropriate.

This approach primarily involved inductive research to explore the behaviour of students learning visual design skills. As Bernard and Ryan (2010) state, "The study of human experience is always exploratory, and is best done inductively." (p. 266). However, "...real research is never purely inductive or purely deductive..." (Bernard & Ryan, 2010, p. 265) and while each individual story is unique, a study of lived experiences will often reveal patterns that will require deductive reasoning.

### 3.3. Methodology

#### 3.3.1. Secondary Research

To examine the extent to which young people are learning visual communication skills through their use of widely available digital media technologies, it was first necessary to establish what was already known about the digital technologies that young people are using. In order to investigate this secondary research was conducted to draw upon a number of existing studies to identify what gaps in knowledge existed. It was found that most young people tend to use digital technologies for social purposes and to find information. It was further found that young people tend to use digital technologies at a superficial level.

Although a number of studies indicated that some young people created visual artefacts using digital technologies, these visual artefacts also tended to be for social reasons or to communication with friends online, rather than for academic or commercial objectives. Consequently, as young people use images mainly to communicate with their friends, they appear to display little concern about any legal or ethical considerations in connection with the production of those images.

Existing research studies that focused on how people learn to see were used to investigate what key skills are needed for effective visual communication. It was found that the ability to communicate through the creation of images is a learned skill. As is the ability to understand what messages images are attempting to communicate. The development of this skill is heavily dependent on the existing background knowledge of the individual. To be able to fully understand the message inherent in an image, the viewer needs to be aware of how images can be assembled to construct particular meanings. It was found that many young people often struggle to understand particular nuances in images and that visual literacy was not a particular strength in young people. Furthermore, visual rightness theory (Arnheim, 1997), Gestalt principles (Wertheimer, 1938) and semiotics (Eco, 1976) need to be explicitly pointed out to people for them to understand how to create effective visual artefacts with a high level of competency.

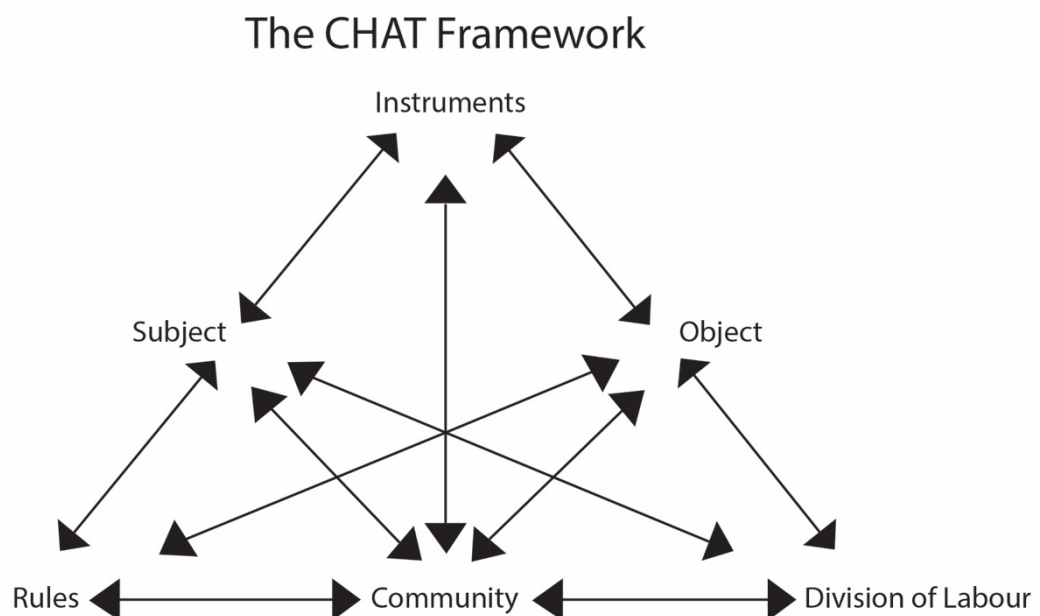
Most of the literature reviewed naturally focused on images produced prior to 2010, which did not consider later developments in digital technologies. Therefore, if the learning of visual communication is dependent on individuals' past experiences of their own production and use of visual materials, it was necessary to conduct primary research with young people to explore what their existing visual communication practices were.

Relevant learning and visual communication theories to underpin the primary research were also identified by the secondary research. This was to provide a suitable and appropriate academic apparatus to examine the research participants' experiences. Specifically, experiential learning theory was considered.

### 3.3.2. Primary Research - CHAT

Vygotsky's activity theory, which had been subsequently developed into the Cultural-Historical Activity Theory (CHAT) framework, was identified as a suitable and appropriate theoretical and intellectual framework, which could then provide a layered analysis of the research participants' experiences. Primary research was carried out using a CHAT framework to identify what influences affected the development of visual communication skills of four groups of post-Millennial learners.

The CHAT framework (Fig. 1) is an "approach that can be used to analyse interactions and relationships within particular social contexts" (Wilson, 2014). The benefit of using the CHAT framework within an educational context is that it allows the researcher to study the process involved in the activity, rather than just the activity itself, or the outcome of the activity.



**Fig 1 - The CHAT Framework**

The basic CHAT framework (Fig. 1) was adapted to suit the objectives of this research (Fig. 2). The *object* is the overall goal, which, in this research, was to develop students' digital skills in the production of a visual artefact. The *subject* (the student) and the *object* are affected by the mediating tools or *instruments*, the *community* in which the subject belongs, the *rules*

of normal behaviour as expected in HE, and the *division of labour*, which is the hierarchical power structure that exists in the classroom. By examining the activity within this framework, it is possible to see where deviances from expected practice occur.

## The Subject (Learner)

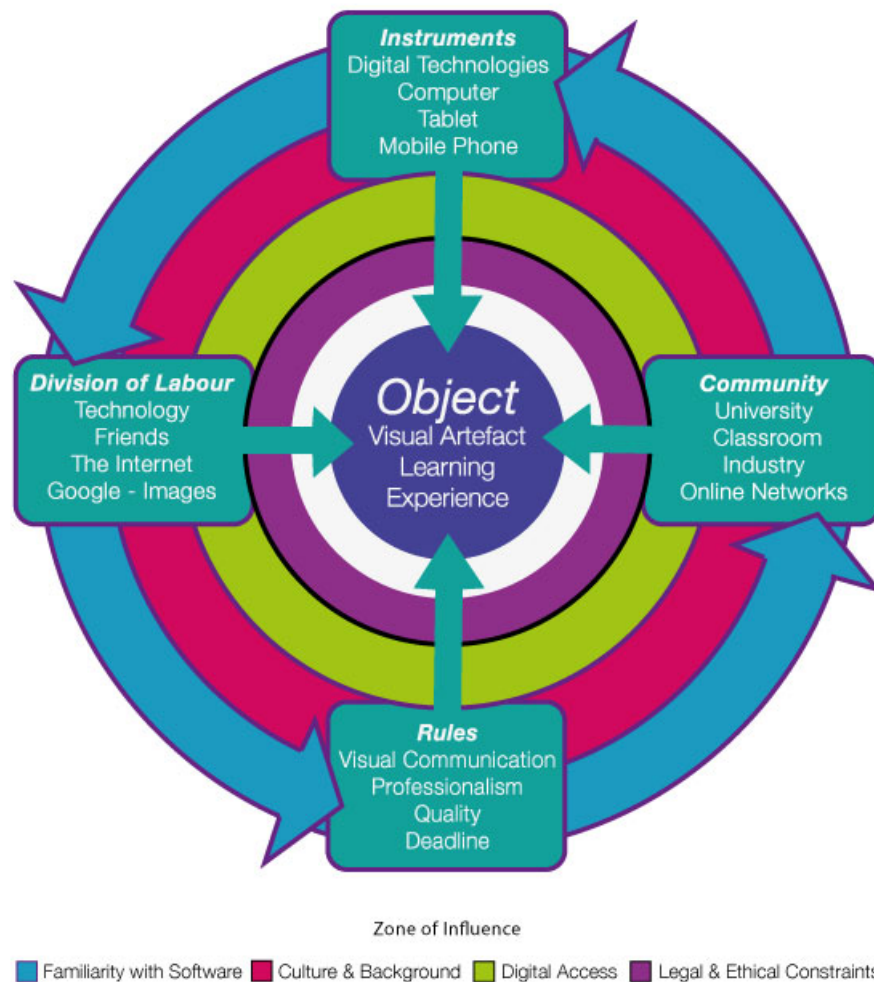


Fig 2 -The Activity System of the Subject (Learner)

### 3.3.2.1. Cultural- Historical Activity Theory - CHAT

The CHAT framework (Engeström, 1999) sits within a constructivist, interpretivist methodology. It is a theoretical framework that can be used to analyse what people think and feel, and what they do, i.e. the relationship between the human mind and activity. It has its foundations in the Russian school of psychology, where it was established by Vygotsky and Leontiev, and was introduced to Europe by Engeström in the 1990s.

This framework theory developed from cultural-historical psychology (Yasnitsky, van der Veer & Ferrari, 2014 eds.). That branch of psychology postulates that the human mind, and therefore thinking, is affected by an individual's social background, culture and history. Cultural-historical psychology was influenced by Pavlov and Bekhterev, the philosophy of Karl Marx and Friedrich Engels, and Gestalt psychology (Wertheimer & Lewin, 1938), and was developed into the CHAT theoretical framework by Vygotsky and Luria in the 1930s.

CHAT aligns well with the constructivist, interpretivist paradigm because it involves the exploration of the individual *subject* (student) in relation to the subject's place in a wider *community*. It also considers the *division of labour* that is involved in the production of an *object* during an activity. "It is self-evident that the activity of every individual man depends on his place in society, on the conditions that are his lot, and on how this lot is worked out in unique, individual circumstances." (Leontiev, 1978, p. 85).

CHAT is similar to Activity Theory, an approach to learning that involves the actual 'doing' of something, which then enables learning to take place. CHAT brings the philosophy of learning and the psychology of the human mind together. The framework presents us with a way to analyse how the cultural-historical background of the learner affects how they learn from what they are doing.

#### *3.3.2.2. Review of Research Studies that have used CHAT*

A review of educational journals was conducted to identify how the CHAT framework had been previously used in educational research. A search on Bera.ac.uk was conducted. However, while a Special Interest Group for Socio-Cultural and Cultural-Historical Activity Theory was found, there appeared to be only five blog articles written on there since 2017. None of which appeared to have any relevance to this research. Another search was conducted in ERIC, using the initial search term "cultural-historical activity theory". This initial search identified 326 articles. The search was narrowed down through the use of the additional search term "higher education" to identify articles that were potentially relevant to this particular study. The total number of articles thus identified were twenty-three. Journals that focused on higher education or online education, which were most closely connected with this study, were selected and each abstract examined. Of these papers, six were selected for a more in-depth analysis to identify how CHAT had been used.

Several of the research pieces used CHAT to identify areas that would benefit from expansive learning to inform the transformation of teaching practices. For example, research conducted by Englund (2018), Englund and Price (2018) and Englund, Olofsson, and

Price (2018) analysed the activity systems and contradictions between the *objects* of different departments involved in a Pharmaceutical programme in Sweden. This research utilised the theory of expansive learning adapted from Engeström (1987). A Change Laboratory, using the Vygotskian 'double stimulation' principle (Vygotsky, 1987) was used. The 'first stimulus' in this research provided the participants with examples of the tensions or disturbances in the working practices of the programme team, as identified by focus group interviews with students, and from student module evaluations (p. 703). The 'second stimulus' allowed the participants to examine; how the *rules* and *division of labour* had developed historically, how the *community* functions, and where changes might be made to improve the situation. This research indicated that although expansive learning was used, it was stopped after the first year, although smaller expansive learning cycles continued to be used to develop the programme overall.

Schuh, Horne and Russell (2018) investigated the use of e-textbooks as learning mediation *tools*, through the analysis of students' journals and through instructor interviews. CHAT allowed them to investigate why the use of e-textbooks within their HE programmes had, mainly, failed. The analysis of the data involved an investigation of instructors' use of e-textbooks, as well as their expectations of students' use of e-textbooks. Through the use of the CHAT framework, they were able to identify differences between the instructors' expectations of the students' use of, and their actual use of, e-textbooks. Student journals were coded using Strauss and Corbin's (1998) comparative coding method and category sets noted. Their findings indicated that for most student participants, the e-textbook was, in itself, the *object*: "As an object, engaging with the e-textbook itself was the "goal" of the activity in that the learner was generally to read a set of assigned pages, potentially marking the text or pages as they read" (Schuh, Horne & Russell, 2018, p. 306). The use of e-textbooks in the activity systems for the instructors varied. For some, the lesser cost implication to students was an *object*. For others, the e-textbook appeared in the *division of labour*; "it was the students' task to interact with the e-textbook, not the instructors" (p. 316). They found that, when the instructors and the students used the e-textbook together it became a mediating *tool*. However, when the students were left goal-free, the e-textbook became an *object*, rather than a *tool* for the students' own learning.

Berg et al. (2016) investigated the place of research in the roles of HE teachers. They examined the language used in HE Teacher job descriptions and advertisements, and analysed job interviews to establish how the *object* of research was constructed. Interview



data from the university-based teacher educators were used to examine the place and focus of research in their work. Using the CHAT framework, Berg et al. (2016) were able to identify contradictions in the *division of labour*. They found that only some of the participants roles were supported by their university to allow them to engage in research. Further contradictions indicated that although the university emphasised research as being important, the recruitment materials, including the job descriptions of many participants, did not reflect this importance (p. 1131). The *rules* for research that these participants used were primarily based on their own personal reasons for conducting research rather than to meet to *object* of the organisation. Further analysis found that the *object* of the job description was in direct conflict with the *object* of the university who expected all teaching staff to contribute to research regardless of whether their workload allowed for this.

In these research studies, CHAT was used to identify the areas of contradiction in the participants activity systems. Once identified, further research was indicated or conducted in the form of expansive transformation.

Kaatrakoski, Littlejohn and Hood (2016) tested the use of the CHAT framework in research. They analysed thirty interviews using CHAT to examine HE educators' engagement with open educational resources. CHAT allowed the researchers to identify three main contradictions using dialectic theory. These contradictions were found to be: between the individual and the organisation's policies; the transfer of responsibility from educators to students as new practice was embedded; and between learning objectives and cost-efficiency. However, this study did not identify the individual elements that make up the activity system such as the *instruments* (tools), *rules*, *division of labour*, *community*, *subject* and *object*, rather the overall contradictions were identified, analysed and explained. They suggested that an in-depth historical analysis was required to explain the contradictions in their findings.

The review of these research studies indicated that CHAT was best utilised when the framework was used to analyse the activity systems of different subjects who are working within the same community on a specific task. Further research in the form of expansive transformation is suggested to make best use of the data generated from the CHAT analysis. Each of these research studies used the CHAT framework to develop into a framework suitable to analyse their particular focus group situation. Therefore, the activity system in which the student participants in this research were working was also developed, with reference to the CHAT framework, into one suitable for this particular study (Fig. 2).

This developed framework allowed the researcher to explore how the *subject* (the student) learns visual communication skills, by assessing how they use online and digital resources to create an artefact. CHAT provided the structure for the questions that were asked of the subjects after they had completed an image production task. These questions explored the subjects' understanding of what *instruments* (computer platforms and software) they had used, as well as the design *rules* they used to produce the artefact. It also considered the impact and effect of anyone or anything else that had been involved in helping them.

In this research, the CHAT framework has been employed in an attempt to make sense of the worldview of the post-Millennial learner, by examining their current knowledge and working practices. An analysis of existing working practices of the participants then allowed the researcher to postulate how, as educators, we can take students from their current level of understanding to the next level of understanding through the Zone of Proximal Development (ZPD) where learners are challenged at, or above, their current level of development (Vygotsky, 1978).

A second phase of research in the form of expansive transformation, as suggested by the review of educational journals that have also used CHAT, is suggested. However, that is outside the scope of this particular research study.

#### *3.3.2.2. How the literature review and CHAT were used*

Within the developed CHAT framework, questions were formulated to survey four groups of post-Millennial HE students (FG1-FG4). The research was conducted over a period of two years and a timeline formulated using a Gantt chart (Appendix 1), to avoid any potential anomalies being due to a particular year's cohort, as well as to keep the work within the timeframe requirements of the research period.

Qualitative data were collected through interviews, observations, and a focus groups, to investigate how students use digital technology and design skills in the production of an artefact. The collected data were hermeneutically analysed (Budd, 2001), to include written, verbal and non-verbal communication through the interpretation of the interviews and transcripts, in order to "gain access to the inner workings of a speaker's state of mind" (p. 271). The data were also dialectically analysed (Guba & Lincoln, 1994) to establish the truth through discourse with the participants. This inductive form of research "...involves the search for patterns from observation and the development of explanations – theories – for those patterns through a series of hypotheses." (Bernard & Ryan, 2010, p. 266). The analysis of the resulting data considers the researcher's own views and how they might influence

their perception of what they are told (Creswell, 2014). This is especially important to consider because the researcher, as a teacher of visual communication with many years' experience, might project some of their own beliefs, of what constitutes good visual communication skills, onto the findings. The CHAT framework is particularly useful in that regard, because it allows any deviances between the researcher's beliefs and the data subjects' beliefs to be highlighted.

Survey questions (Appendix 2) were devised using Engeström's (1987) adaptation of Vygotsky's mediational triangle. That concept originally consisted of subject, object and mediational tools. It was extended into the CHAT framework to include the rules, community and the division of labour (Fig 2).

These questions included:

1. What *instruments* did the participants use? (Mediating Artefacts)
2. What 'design' *rules* did they perceive to be important?
3. Who or what (*Community, Division of Labour*) helped them?

An audio-recorded interview was conducted with the first focus group (FG1) and later transcribed. Free-form notes were also taken as back-up. The interviews took place after the participants had finished a task, which was to create a board game from an existing video game.

In the second and third focus groups (FG2 and FG3), the subjects were observed as they went through the process of creating the visual artefacts, as required by the task. Free-form notes were made about how they approached the activity. These interviews and observations allowed the researcher to observe at close hand what steps the subjects took as they attempted to create visual artefacts.

A questionnaire was also used with focus group 3 (FG3a) (Appendix 3), to establish what digital tools they had previously used prior to entering HE. This approach enabled the researcher to use the data from that focus group (FG3a), and to incorporate the findings from the questionnaire into the overall results. It is recognised that with a small group such as this, the results can only be considered indicative. Therefore, the results from the questionnaire were compared to national (OFCOM, 2008) and international statistics (OECD, 2015) in order to assess a degree of corroboration with the findings.

As themes began to emerge from the analysis of the data and findings from the first three focus groups, it became clear that further clarification was required about the specific devices that young people use to take, create and edit images. For example, when asked how well they knew how to use Photoshop, some students said “very well”. However, it later transpired that they might have been referring to the Photoshop mobile application rather than the full computer-based software. To investigate this issue, a further focus was carried out, in the form of a focus group - FG4 - that investigated how young people use mobile phone apps to produced images.

### 3.4. Methods and Techniques

The techniques used to investigate the focus groups were interviews, observations and questionnaires. Each student who took part was given information about the study and gave their permission for the data gathered to be used in this research (Appendix 4). How the focus groups were selected and studied are detailed below.

#### 3.4.1. Focus group 1 (FG1)

- Method – interview
- Tools – semi-structured questions
- Instruments – interview audio recording and transcript

##### 3.4.1.1. Rationale

The students in FG1 consisted of Computer Science students who might be expected to have a higher degree of computer literacy than non-computer science students. This group of students was chosen in order to consider the effects that the digital divide might have on the digital literacy of post-Millennials (Brake, 2013).

##### 3.4.1.2. Participants

A cohort of Level 4 Computer Science students was purposively selected, as they were more likely to be familiar with computer technology than visual-based media students. The students were in the first two weeks of their programme. From the cohort, an opportunity sample of ten students volunteered to take part. This focus group - FG1 - consisted of N = 10 students (2016). Their birth years ranged from 1993 to 1998 (aged – 18 - 23, mean age = 19). The students were divided into three sub-groups for manageability - two groups of three students and one group of four students.

#### *3.4.1.3. Task*

The purpose of this study was to examine the current working practices of the students in the completion of a task. This task was given to them as part of the induction to their programme of study. The task was to produce a board game based on an existing video game. The students were given no instructions about how to construct the game. The task was given by their lecturer in order for them to assess the students' pre-existing knowledge and understanding of the techniques and practices used in game design.

#### *3.4.1.4. Methods, Tools and Instruments*

The method used with FG1 was interview. The three sub-groups were interviewed using the same set of tools - semi-structured questions, which were asked to each student (Appendix 2). The instruments used to record the data responses were audio recordings, which were later transcribed for analysis. Free-form notes were also taken at the same time, for back-up. The transcripts were analysed and open-coded to highlight broad categories that were then used to form preliminary codes and themes (Appendix 6).

#### *3.4.2. Focus group 2 (FG2)*

- Method – unstructured observation, questionnaire
- Tools – field notes, post-task questionnaire
- Instruments – reflective journal; Word document pre-loaded with questions, which was completed after the session and emailed to the researcher

##### *3.4.2.1. Rationale*

The students in FG2 consisted of Advertising students, who might be expected to have a higher degree of visual literacy than students following a non-visual-based programme. This group of students was chosen to investigate their pre-existing knowledge and understanding of visual design. This part of the investigation drew on previous studies that suggested that young people are "intuitive visual communicators" (Oblinger & Oblinger, 2005).

##### *3.4.2.2. Participants*

The cohort was purposively selected from the researcher's own programme of Advertising. Within the cohort, six students were randomly chosen to be observed during the production of the task, and the observations were recorded in free-form notes. This focus group - FG2 - consisted of N=6 students (2016) in the first week of a Level 4 Advertising programme. Their birth years ranged from 1996 to 1998 (aged between 18 - 20, mean age = 19).

#### 3.4.2.3. Task

FG2 examined the current working practices of the participants in the completion of a task given to them as part of the induction to their programme of study. For this focus group, the researcher was able to design a task that would meet both the needs of the students' course work, as well as the research. A brief (Appendix 5) was given to the group that required them to reproduce a print advert, as near to the original as possible, for Heinz Baked Beans (Fig. 3). The participants were advised that they were free to use whatever equipment or software that they felt was most appropriate for the task.

The students were offered a tin of beans, given access to DSLR cameras, the services of a media technician, and a photographic studio, but no other help or assistance was given unless requested by the student. They were presented with the task in an Apple Mac computer laboratory with the Adobe Creative Suite installed on each machine.



Fig. 3 - Heinz Beans Advert

#### 3.4.2.4. Methods, Tools and Instruments

The methods used with FG2 were unstructured observation and questionnaire. The observations were recorded in free-form notes after the session. A Word document was pre-loaded with questions that encouraged the students to think about the production process, and to reflect on the actions that they took to create the artefact. The questionnaires, and notes taken were analysed and open-coded to form preliminary codes, as themes emerged (Appendix 6).

### 3.4.3. Focus group 3 (FG3)

- Methods – unstructured observation, questionnaire
- Tools – field notes, post-task questionnaire, JISC's Online Surveys tool
- Instruments – reflective journal; Word document pre-loaded with questions, which was completed after the session and emailed to the researcher; web form

#### 3.4.3.1. Rationale

The students in FG3 consisted of a second cohort of Advertising students. This research was recorded a year later than FG2, in 2017, to give two different sets of findings, over two sets of cohorts in different years, within the time constraints of the research.

During the initial coding of the data from FG2, it had been noticed that some students appeared to confuse the Adobe Creative Cloud software with its much scaled-down mobile phone application. Therefore, after the completion of the task, the entire cohort was asked to complete an online questionnaire (Appendix 3), which focused on their past use of digital technology, and their past training and experience in visual communication. The questions in this survey (FG3a) were tailored so that the results could be quantified. For example, many of the participants claimed to have a high level of knowledge of a particular software programme, however, through this questionnaire it was possible to determine exactly what that meant to them.

#### 3.4.3.2. Participants

Focus group FG3a consisted of a cohort of Combined Honours Advertising students, N=13. This cohort was purposively selected from the researcher's own programme of Advertising in the year following the investigations of FG1 and FG2 (2017). Their birth years ranged from 1995 to 1999 (aged between 18 - 22, mean age = 20.5).

Within this cohort, six students were randomly chosen (FG3b). Their birth years ranged from 1997 to 1999 (aged between 18 - 20, mean age = 19). They formed sub-group FG3b. This group were observed during the production of the same set task as FG2 (Appendix 5), under similar circumstances, and the observations were recorded in free-form notes. The students in FG3b were asked to complete a post-task questionnaire in a manner similar to the previous year's focus group - FG2.

#### 3.4.3.3. Methods, Tools and Instruments

The methods used included unstructured observation and questionnaire as used with FG2, the previous year.

The online questionnaire was completed by the full cohort – FG3a.

Although it is recognised that this small online questionnaire was not robust enough to generate significant data, the results were useful in that they could be compared with a national survey, that had focused on UK children's media literacy (OFCOM, 2008). The OFCOM survey covered children who would now be in the age range of those taking part in this research. The online questionnaire results were also compared with an international study conducted by the Organisation for Economic Co-operation and Development (OECD) that compared students' (aged 15 years-old) use of computers with their academic performance (OECD, 2015).

#### 3.4.4. Focus group 4 (FG4)

- Methods – focus group, overt observation
- Tool – field notes
- Instrument – reflective journal

##### 3.4.4.1. Rationale

After analysing and coding the data from the initial three focus groups, it became clear that clarification was needed about how the post-Millennials were using their mobile phones in the production of an image. To do this, it was necessary to obtain the help of a small group of students who were familiar to the researcher.

Focus group method was chosen because the interaction between the group members would reveal information about how they used their social media spaces to communicate with each other. Overt observation was used as it allowed the researcher to note the physical movements made by the students that highlighted some of the practices that had previously been unexplained. For example, only through the observation did it become clear that the way that people hold their phones when taking a picture might account for the increase in tilted shots that are often seen in online social media spaces.

##### 3.4.4.2. Participants

The focus group consisted of Level 6 Advertising students (2017) N = 3. An opportunity sample was used as the group did not need to represent any group other than itself. It is not possible to generalise about the results of this particular group, and the results do not claim to be representative of a wider audience. However, the value of this focus group is in the qualitative proximity to this particular group of students that it allowed the researcher.



#### *3.4.4.3. Task*

There were two elements to this part of the research. Firstly, the students were asked to show how they would take and upload an image to social media, while they were observed how they went about it and free-form notes were taken. The second part was a group discussion of their use of images in social media spaces. Notes were taken in free form.

#### *3.4.4.3. Methods, Tools and Instruments*

The methods used for FG4 were a focus group and observation. The tool used was field notes while the instrument used was a reflective journal.

Although it was possible to use covert observation with FG4, as their social media accounts were publicly available, to do so would have compromised the privacy of the subjects, affected their trust in the researcher, and be unethical. Therefore, in this instance, overt observation was used. The subjects gave their full and informed consent to the observation taking place.

A high risk of bias exists with any type of observation as the observer chooses where to look, and what to observe. They can also miss crucial behaviour if they are distracted. Furthermore, those being observed may behave differently or feel more anxious during the observation. There is also the risk that what is recorded is affected by the researcher's own personal judgement. To address some of the issues of validity, only one student at a time was observed, and only relevant behaviours, such as how the student held their phone while taking a photograph, were recorded.

### *3.5. Data Analysis*

The audio recordings from FG1 were transcribed in to a Word document. Each transcript, questionnaire and field notes from each focus group were individually analysed, and strings of text copied into an Excel document (Appendix 6). Initial codes were applied. The text strings were cross-referenced back to the original documents, and comments relating to the observations, as recorded in the field notes made by the researcher, were applied where necessary.

Code variables were noted and grouped into categories. For example, students referred to their use of the Internet in a number of different ways such as: "I went on to dafont.com"; "I watched a few video tutorials on YouTube"; "We used Google images". These categories then formed the themes that emerged from the data.

### 3.6. Reliability, Generalisation and Validation

Of particular concern when conducting qualitative research are issues of reliability, generalisation and validity. Unlike quantitative research, “qualitative research is contextual and subjective” (Whittemore, Chas & Mandle, 2011, p. 524). To preserve the accuracy of the procedures, and to assess the reliability of the methods used in this research, four separate groups were surveyed, over a period of two years (Appendix 1). Four different types of instruments were employed. While the data was therefore collected from different settings, its analysis enabled common themes to be identified across the settings. The findings could therefore be considered to be more generalised and therefore indicative of a wider population. Furthermore, combining the results from the four focus groups meant that it was possible to triangulate the different methods used in order to assess reliability of the methods used, and to validate the results (Silverman, 2010).

### 3.7. Limitations

The limitations of this research lie with the use of the particular groups of research subjects. Because a CHAT framework is used within a particular community, the outcomes might well be very different in different contexts. A purposive sample was selected based on the age of the subject, and the programme of study. Although every effort was made to include students from a range of different backgrounds and experiences it was not feasible, within the availability of data subjects, to cover people from all walks of life. Consequently, it would therefore be difficult to strongly generalise the results of this research, although the results may be considered indicative of the wider population.

Furthermore, as the research study examined the activity systems within the context of HE, it would have been useful to have also conducted interviews with HE teaching staff to explore what they considered to be the *object* of HE. However, as the research drew on the researchers own academic programme this was not, in this case, deemed necessary. Future research may wish to explore this topic using *subjects* drawn from a wider academic field to examine the activity systems of both students and teachers.

An examination of the topic using a two-phase research investigation would have been useful. This research incorporates the first-phase - the analysis of the subjects’ activity systems to identify contradictions. This could be followed by a second-phase of expansive learning, as it is only by embracing the contradictions found and devising new solutions to address them that transformation may take place. However, due to time and word-count

restrictions, this study was limited to the first-phase only. A second-phase is suggested for further research study.

### 3.8. Ethics

The use of qualitative data to inform this research involved ethical issues such as the use of potentially invasive questioning to determine the participants' social standing, and their previous visual literacy education. This might have caused a certain amount of discomfort for the participants. In order to minimize this effect, each participant was given the option to not answer any questions that they might have felt too sensitive.

The participants consisted of those who had given full, informed and signed consent (Appendix 4) to their involvement in the research study. Full confidentiality and anonymity will be given to preserve the participants' identities. The management and use of all personal data collected will conform to the current data protection legislation<sup>9</sup>. It will be used only for specified, explicit and lawful purposes, and not be further processed in a manner incompatible with the intended purposes.

Ethical duty will extend to the analysis of the data (Appendices 8 & 9), and to the reporting of results of the analysis in a balanced and unbiased manner, so as to avoid misrepresentation of the data.

### 3.9. Chapter Summary

Different survey methods were used as they enabled the researcher to analyse different aspects of the focus groups' general working patterns. In the first instance, the interviews allowed further clarification through dialectic discussion, to enable the researcher to understand the meaning behind some of the comments made. However, it was difficult to procure some knowledge and understanding from the students in FG1 without compromising the research. For example, at one point one of the participants went to great lengths to explain to the researcher what Photoshop was, clearly inferring that they thought that the researcher had no knowledge of computer technology or software. This allowed the researcher to make some inferences that related to other aspects of what the participants said.

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<sup>9</sup> At the time of research and writing up, relevant legislation was changing from the Data Protection Act, 1998, to the UK implementation of the EU General Data Protection Regulation, through the Data Protection Act, 2018.

Gathering the data from four focus groups in three different settings meant that the results could be considered to be more generalised and therefore more indicative of a wider population. However, it is recognised that within qualitative research of this kind the results can only be indicatively applied to a wider context.

The use of the CHAT framework allowed the researcher to identify specific elements in the research – the *object* – the production of the artefact, how the *subject* – the student - worked within a particular *community* – the university classroom. It was then possible to identify what mediating artefacts – *instruments* and *rules* they used and what they perceived was the hierarchical power structure involved in the activity – the *division of labour*. Deviances between the expectations of the lecturer and the activity of the students were subsequently identified.

The results from the research are presented and analysed in the following chapter.

## Chapter 4. Findings and Analysis

### 4.1. Introduction

The findings from the data are first presented in a thematic analysis. This analytical process is what Strauss and Corbin (1998) describe as ‘open-coding’, and what Charmaz (2005) terms ‘initial coding’. As the coding process took place, the data was fragmented, and examples of concepts brought together to see how they related to broader concepts. The process involved hypothesis testing throughout each transcript (Bernard and Ryan, 2010). For example, the words ‘Google it’ were regularly seen within the transcripts of the first focus group analysed. References to Google and the Internet were then looked for within the data of the other focus groups, to see how often these words were repeated. This is a similar approach to grounded theory, as the themes are allowed to emerge from the data (Bernard & Ryan, 2010). As coding categories emerged, they were linked together in themes that held everything together (Glaser and Strauss, 1967).

The data was then subjected to a further analysis to relate the findings to the elements highlighted in the CHAT framework (Fig. 2), to form a situational analysis. This layered analysis was based on the students’ existing working practices. For example, what production *instruments* they used, what *community* they worked in, what was the *division of labour*, and what *rules* did they use in the design and production of the visual artefact.

#### 4.1.1. Raw data

A total of 792 individual comments were recorded from the interviews and questionnaires used in the four focus groups. Within these comments, 54 variables were noted. For example, within the category ‘Use of the Internet’, the variables included ‘Google’, ‘YouTube’, ‘Google Docs’, ‘dafont.com’ and ‘Facebook’.

## 4.2. Thematic Analysis

A number of themes and sub-themes were identified from the data. These frequently manifested in all four focus groups, although their rates of occurrence varied between the different focus groups.

The themes and sub-themes identified were:

1. Confidence
  - a. Participants' over-confidence in their own ability compared to their actual ability
  - b. Participants' reliance on the internet or peers for help rather than on staff
2. Participants' perception of professional practices
  - a. Participants' desire to expedite tasks quickly – speed over quality
3. Participants' visual design rules considerations based on their own personal preferences
  - a. Participants' disregard of traditional academic visual design rules

Although a single central theme was not identified, a synthesis of these three themes suggests that the primary concern for the students in these focus group was their 'need for speed'.

### 4.2.1. Theme 1 – Confidence

The analysis of the data indicated that most of the students demonstrated fairly high confidence in their ability to solve the problems presented by the task, without the need for any staff input. Only one student in the four focus groups asked a staff member for help, and only then after they had exhausted other routes. Furthermore, the students appeared to believe that their ability to use the software, and their ability to complete the task to a high, professional standard, was much better than their completed artefacts suggested.

#### 4.2.1.a. Participants' over-confidence in their own ability compared to their actual ability

Many students rated themselves as higher than average when asked how well they had completed the set task, even when they had already perceived that their work had a number of failings. For example, one student in focus group 1 (FG1) gave their group a mark of six out of a possible ten even though they said, *“didn't really get chance to play test it so there were a few faults and holes in the game which could be filled up with what (the lecturer) said was strategy”*.

In focus group 2 (FG2), two of the participants decide to draw the tin or add extra beans to the image:

*I had to add a few extra beans to the Heinz can because the image I was working from didn't really add up so I had to add some more beans either side of the design. But the ad overall still looks very close to the original so this minor design change is very subtle. (FG2).*

This indicates that this student believed that the advert they had created was very similar to the original advert even though they had changed the image in their advert. It was also noted that this student gave themselves seven out of ten based on how similar their advert (Fig. 10) was to the original advert.

In focus group 3 (FG3b), one student gave themselves a six out of ten, despite not finishing the artefact: *"As I didn't finish the image change I wouldn't say it was perfect but in terms of the image it was pretty much the same."* (FG3b). Another student gave themselves seven out of ten even though they had only just started to use the software.

It was found that many students felt confident in using software such as Adobe Photoshop, as they had used it previously at school: *"I had no help with the task, I've been editing photos since secondary school so I didn't need to use a tutorial or ask for any help"* (FG2). However, an analysis of the data from focus group 3 (FG3a) revealed that the students' previous use of the software was minimal. Almost 62% said that they had used Adobe Photoshop to create fewer than ten projects. Only one respondent said that they had used it to create more than 50 projects, which would indicate a very high level of use. However, it was noted that none of the students in the wider cohort had demonstrated a high level of ability in the use of this software (FG3a, Q. 10.1).


It was found that some students appeared to be unaware of the differences between an illustration of the Heinz beans tin and that of a studio photograph of the tin. One student in FG2 gave themselves seven out of ten, for similarity between the original advert and their own illustration, despite commenting:

*I made the advert in my own style which was by drawing it. I think this suits the advert a lot more being as the main text says "For kids that are full of beans" which even had a style of that if a child has written it with a crayon. (FG2) (Fig. 10).*



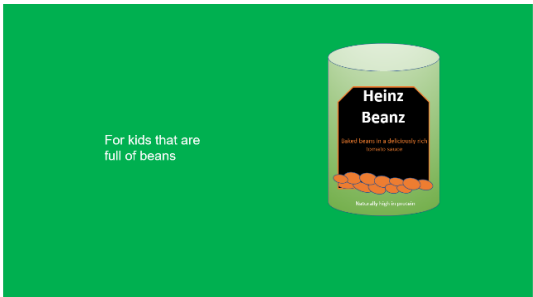
There is also an assumption present in these words that indicates a high level of confidence in their own visual judgment and skill.

Correlating with the Dunning-Kruger effect (1999), those students who were least competent tended to over-estimate their ability, whereas some of the students who had better skills with the software were more realistic in their assessment of their skills. However, it was noted that the students' overall confidence in their ability to develop visual artefacts and use appropriate software dropped in the third focus group (FG3) when compared to the previous years' two focus groups (FG1 and FG2). Although this might be confined to the particular cohort, it might also indicate an overall trend developing that may need to be monitored through a longitudinal study.

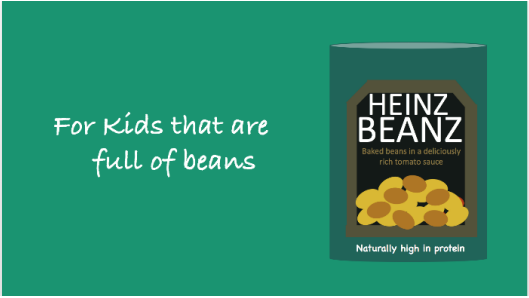
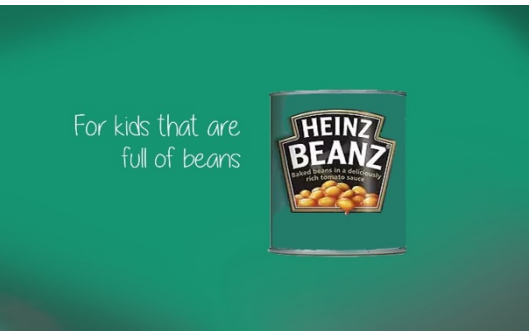
The following examples analyse some of the adverts that were produced by the students in FG2 and FG3b for this task, and are to be compared with the original advert (Fig. 4).


Example advert	Analysis of advert
 <p><b>Fig. 4 – Original Heinz Beans Advert used for focus groups FG2 &amp; FG3b.</b></p> <p><i>The students in these groups were required to reproduce this advert as near as possible to the original for their task.</i></p>	<p>The background colour is the same iconic green colour used by the brand Heinz for its beans tins. Behind the tin there is a circular gradient that is centred on the left-hand side of the tin, thus giving the tin a halo effect that projects the tin forward from the background.</p> <p>The typeface is a handwritten script, reminiscent of teachers' writing, and relates to the words in the caption "For kids that are full of beans".</p> <p>The positioning of the caption is ranged right, and lines up with the brand name which allows the reader's eye to travel from the word "For kids that are ... Heinz" This is a form of editing used by the designers to associate the brand with its target audiences, through the use of the Gestalt principles of continuation and proximity.</p>



 <p>The tin is located to the right of the frame, in a position that conforms to the golden spiral. This spiral is a rule used by designers to draw the eye across the image to focus on a particular part of an image or product. In this case, it is the area where the bean is shown dripping with tomato sauce, located just above the words "57 varieties" that are also associated with the brand.</p> <p>The two lines of type are closely set together, ranged right and off-centre. This focuses the viewer's attention on the image of the tin, which has been positioned with its left-hand edge on the section line of the golden ratio.</p> <p><b>Fig. 5 - Golden spiral and golden ratio applied to the original Heinz Beans Advert</b></p> <p><i>The golden ratio<sup>10</sup> and spiral have been highlighted in this image to demonstrate how the advert conforms to the golden ratio.</i></p>	
 <p>Fig. 6 illustrates an advert produced by a student in FG3b. The background is a different colour from both the tin and the original advert. The typeface has a childlike feel to it, but is smaller and positioned differently from the original. The tin has been positioned with its left-hand edge on the centre line of the rectangle, making the whole picture look unbalanced. The photograph of the tin has been taken from a different higher angle. This means we are looking down on the tin. This has the effect of making the product look weaker and more inferior than the one in the original advert. The photograph is of poor quality, with weaker contrast.</p> <p><b>Fig. 6 – Example 1 - Advert created by student in response to the task given to focus group - FG3b</b></p> <p><i>Photoshop was used to create this advert using an image downloaded from Google, but not from the Heinz website.</i></p>	
 <p>This advert has been created through the use of drawing tools within PowerPoint. This has severely restricted the student's ability to reconstruct the advert like the original one. The background is the wrong colour; flat with no gradient. The caption uses the wrong type family. A sans-serif typeface has been used instead of a hand-written typeface. It is incorrectly ranged-left, too small, and positioned in the horizontal centre, to the left of the advert. The tin is an illustration rather than a photograph, and has been presented from a high angle. Although it demonstrates some skills in the use of the software, these are limited. The student could have imported a photograph, yet has not done so.</p> <p><b>Fig. 7 – Example 2 - Advert created by student in response to the task given to focus group - FG3b</b></p> <p><i>This student used PowerPoint to create their advert.</i></p>	

<sup>10</sup> The Italian mathematician, Fibonacci (c. 1170-1250), recognised patterns in nature that conformed to a sequence of numbers. These numbers, 0,1,1,2,3,5,8,13,21,34, result in a ratio – 1.168, which is known as the golden ratio. Using the golden ratio in design is believed to be aesthetically pleasing.

 <p><b>Fig. 8 – Example 3 - Advert created by student in response to the task given to focus group - FG3b</b></p> <p><i>This student used PowerPoint to create their advert.</i></p>	<p>Example 3 – Fig. 8 demonstrates that this student has also used PowerPoint. They have used the in-built drawing tools to create the tin, rather than use a photograph.</p> <p>This advert demonstrates some layout skills in that the positioning of the tin is correctly located in the frame on the right-hand side. Its position also, more or less, conforms to the golden ratio.</p> <p>The typeface used has been correctly identified as a handwritten type. However, it has been poorly positioned, both within its two lines of type that are slightly off centre, as well as in its position on the page.</p> <p>The colours used do not conform to the colours used by the brand.</p>
 <p><b>Fig. 9 – Example 4 - Advert created by student in response to the task given to focus group - FG3b</b></p> <p><i>This student used Photoshop to create the advert. The advert uses an image downloaded from Google, but not from the Heinz website.</i></p>	<p>A photograph has been used this advert – Fig. 9. However, it has been distorted, thus losing its original proportions, and making it appear fatter than the actual tin.</p> <p>The label on the tin has been modified through the deletion of the brand's iconic words "57 varieties", and by removing the text that reminds people that the contents are one of their five a day.</p> <p>In their post-task questionnaire, this student said that they had done this because the tin that they found online was not the same as the one in the original advert and therefore they decided to delete the words that were different.</p> <p>The background uses a gradient effect. However, the darkness of the edges draws the viewer's eyes towards the corners, rather than towards the tin.</p> <p>The caption has been written in the hand-written family of typefaces. However, has been incorrectly positioned with both the left-hand side of the tin and the right-hand side of the caption drawing the viewer's eyes to the centre of the advert.</p>

	<p>This advert – Fig 10, although created using Photoshop, has had various elements added. The tin has been recreated using drawing tools rather than having used a photograph. This has resulted in the curvature of the tin being unnatural. Although there is an element of skill used to create the different elements of the tin, the student appears to have spent time using the software as they have previously used it, rather than use their skills to recreate the advert more simply. Consequently, the colour is wrong, the typeface is incorrect and uneven, and the wording on the tin is not the same as the original.</p> <p>The tin is positioned nearer to the centre of the image. The text has been ranged to the right, although it is too large and slightly out of position. Despite these obvious discrepancies, this student awarded themselves seven out of ten for similarity to the original.</p>
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In examples Fig. 7 and Fig. 8, it is clear that two of the students did not know what an appropriate software would be to use. Nor did they have the production skills necessary to produce an advert similar to the original. They selected the software based on their familiarity with it, having used it before. They did not ask advice from the lecturer about what software they should use. Although there is evidence presented, within the production of the adverts, that they have some skills with the use of the software PowerPoint, they have only been able to demonstrate that they have superficial skills. For example, an experienced user of PowerPoint should have been able to import a photograph of the Heinz Baked Beans tin into the software, rather than draw one using the programme's in-built drawing tools. They should have also been able to position the type correctly using this software.

The advert seen in Fig 10. demonstrates that although the student was familiar with the use of the software, to the extent that they were able to use their skills to recreate the advert, they demonstrated little understanding of design rules. More surprisingly, they seemed either unaware or indifferent to the differences in the advert that they produced, when compared to the original.

The manner in which the students produced their advert often involved unnecessary and extraneous work. For example, instead of finding a suitable and similar typeface, the student in FG2 decided to use the original image to trace the type.

*I decided to put the text where it was by trying to match the advert I was meant to copy. As for the text its self [sic] I didn't type any of it up. I traced the text on the original image which was tiny in size and then scaled it up to be the correct size. The image I had to work with was only 480p but I went on you tube [sic] and found the video it was off to get a 720p sample. The image was still to [sic] small so for most of the work I just had to eyeball the image. (FG2).*

This student also expressed a high degree of confidence that their way of working was appropriate and that their skills were of a high standard. However, their words indicated that they were driven by the need to complete the task quickly, and that they were confident that they knew how to solve problems without the need to ask.

*I think that my visual design strengths are using Photoshop and coming up with different ideas and methods of doing certain tasks. This is because I have used Photoshop for quite a while now and have learned different tricks to work around certain problems faster. As for the coming up with different methods of doing certain tasks I learned how to get round [sic] problems faster by figuring out how to fix mistakes and problems in an easy way. (FG2)*

In order to overcome the issue that the students might have had with their lack of knowledge of the software, the students in FG3b were given the opportunity, in a subsequent lesson, to recreate the advert during a taught session. This session delivered very specific, step-by-step, instructions on how to create the advert using Photoshop. These instructions were presented on a screen within the computer laboratory. The task followed a session that had focused on the design rules that existed in the advert such as Gestalt principles and the golden ratio. At each step, the lecturer checked to see that all the students were following the instructions, and were keeping up with the task. The image of the beans tin was downloaded from the Heinz assets' page, which is available through the Heinz website.



Fig. 11 – Example 6 – Advert created by student in response to the task given to focus group 3 – FG3



Fig. 12 – Example 7 – Advert created by student in response to the task given to focus group 3 – FG3

The adverts in Fig. 11 and Fig. 12 were created during the tutored session. These adverts demonstrate that some learning has taken place. However, that learning is only in relation to how to use the software. It is clear that the positioning of the two elements - photograph and type - as well as the size and formatting of the text, is not the same as the original advert (Fig 4). This demonstrates that the student is still missing some vital visual communications skills in connection with layout and typography. In this student's analysis of their advert (Fig. 11) they state the following:

*From my point of view, the first advert created was not at a professional standard this was because the advert was created on PowerPoint, this was because to begin with I didn't know how to use Photoshop and I had a lack of understanding. Then when recreating the advert again, I followed some steps. For this advert, some certain skills were needed the Gestalt theory for example within this advert you need to understand the relationship and the understanding of the text and how it works well with the can and how the text is childlike and the similarity of the whole back ground [sic] relating with the image itself. I think that I have created the advert well due to how similar it is to the actual. (FG3b)*

Both adverts in Figs 10 and 11 demonstrate that despite being given instructions on how to position the tin and caption, some students in this survey group still struggled with the correct placement of the tin and text. It can be seen in these adverts that in Example 6 (Fig. 10) the student has centred the caption and made it too big. In Example 7 (Fig. 11) the student has distorted the tin, making it too slim.

#### 4.2.1.b. Participants' reliance on the Internet or peers for help rather than staff

In the focus groups, the students' confidence in their ability to produce the artefact to a high level was also demonstrated in their reluctance to ask staff for help, preferring instead to, *"work it out myself"* (FG1). Alternatively, they indicated that they already knew all that they needed to know about how to construct the artefact: *"Not really we pretty much knew from personal experience what to do, even just plugging the laptop into the TV, knew how to do it"* (FG1).

When asked why they did not approach staff for help with the use of the software or equipment, their comments gave further indication of their confidence in their own ability. Interviewer: *"Why didn't you ask the staff?"* Student: *"Didn't really want to ask. Thought I am a computer scientist supposedly"* (FG1). Their comments might also be interpreted as under-confidence. They might not have wished to appear stupid.

To help overcome any lack of knowledge when the students encountered a specific problem, instead of approaching staff, they tended to ask friends or they used the Internet: *"My friend (name), member of group he knew more about Photoshop than any of us and he taught me how to download a font from the Internet in a font folder"* (FG1); *"I asked people in the class if I couldn't work anything out for myself. I looked something up online"* (FG2); *"I received help from one of my peers and I also did some research on Google, where I read what other people had said"*. (FG3)

Only one student asked the lecturer for help when all else failed:

*At first when I was playing around with the software I was sat next to (student name) who showed me where all the basic tools were and he tried to teach me how to use the gradient tool however when I then later tried to use it by myself I couldn't figure out how it worked again so I had to ask my lecturer how to do it.* (FG2).

The students' reluctance to ask lecturing staff for help was a surprising result, as they had all recently left other educational establishments. However, this might also be indicative of an underlying and unacknowledged lack of confidence in their ability, rather than the perceived over-confidence.

In all of the focus groups, the students tended to place a heavy reliance on using the Internet to solve problems. In the tasks set, the participants' use of digital technologies appeared to be restricted to research of visual designs, and in the downloading of images or typefaces

from the Internet: *“I googled a font website and searched for a typeface which was similar to the original. I looked for curved edges and spaced out lettering which resembled a child’s handwriting.”* (FG2); *“As I started to recreate the image I ended up being able to get the font of the actual ad into the advert. I just worked from copying it off the internet”* (FG3); *“The only assistance we had was in the early stage we were looking for designs we just went on the Internet.”* (FG1).

In all of the groups, the students used Google to search and find images to use, rather than take photographs themselves. YouTube was also used to find out how to use some elements of the software:

*When I had to do the vignette for the background I wasn’t really sure how to do it. So, after I tried to do it how I thought I could do it I had to go on YouTube to look for a tutorial, and I found a quick and easy way of how to do it. Which I used to make my own vignette. This was the only time I had to look for help on this task.* (FG2).

The students in FG1 used the Internet to source images that they then printed out and glued to card to produce a primitive board game. This approach was used rather than investigating whether more appropriate digital technologies were available for them to use.

*We couldn’t figure out how to make the card backs, so I could write the text on back of cards. So, we had to print out and hand-write it on the back. We put tape together for the board game which didn’t go so well and used scissors to cut out spare pieces. We squished his face and a bit of his eye is missing.* (FG1).

Furthermore, the students downloaded images that were of a low resolution and therefore unsuitable for print. Similarly, none of the students in FG2 and FG3 downloaded the baked beans product pack shot from the Heinz assets’ webpage, nor did they even consider that there might be such an image of a tin of Heinz Beans on the Heinz website<sup>11</sup>.

In focus groups FG2 and FG3b, the majority of the participants identified the style of the typeface used on the original advert as being childlike, but none of them were able to find,

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<sup>11</sup> Heinz, in common with many major brands, has a number of images of their main products, which are available to download from their website.

and subsequently use, the same typeface as used in the advert. This demonstrated a reliance on the Internet to solve problems, and an acceptance of mediocrity: *"I went onto dafont.com but I couldn't download the font I wanted so I used the one that was closest" (FG2); "As I was unsure of what font to use, I decided to go to dafont.com and find a similar font to the original as possible" (FG2); "In the original, the typeface looked like a child's writing so I picked a font that is closest to what a child's writing would look like. Mine is still straighter and neater than I would like it to be but it was the closest I can get it to."* (FG3).

The need to expedite the task quickly appeared to be the most important consideration for the participants in these focus groups. The data suggests that the participants tended to use software and equipment with which they were more familiar, as it was quicker and easier for them, even if inappropriate tools for the task.

#### 4.2.2. Theme 2 – Participants' perception of professional practices

The participating students demonstrated some awareness of professional practices. The issue of meeting professional deadlines was noted by the students in FG1. The students in FG2 and FG3 indicated that they had some awareness that the advert would need a high-quality image. However, it transpired that they had little understanding of what constituted a professionally produced image. This was demonstrated by their propensity to use low-resolution images downloaded off the Internet.

##### 4.2.2.a. Participants' desire to expedite tasks quickly

The students' working practices appeared to focus primarily on their perception of the need to expedite the tasks as quickly as possible. This was indicated by comments related to deadlines: *"Our group as a whole were very conscious of the time limitation" (FG1); "Yes, simple within the time period was the most important thing for our group" (FG1); "Construction of game because we needed to meet deadline" (FG1); "For industry, if you don't meet deadline, you don't get paid which is what we have learnt. So, we needed to meet our deadline, that would happen in industry" (FG1).*

Another indication of the 'need for speed' was revealed in the participants' selection of tools: *"Instinct, first thing we thought of" (FG1); "Because that is what we have used before and we are familiar with it" (FG1); "We decided we had all used Photoshop before in the past so we thought we would use what we were comfortable with already" (FG1); "I thought it would be a waste of time trying to create a new logo, especially when there is already one out there" (FG1); "Yes – got a picture of background and printed that off from Google Chrome, printed straight off" (FG1); "No just took off Internet, and took out bits needed" (FG1).*



The students in FG2 and FG3 appeared to have an understanding that high-quality images are required for advertising artefacts. However, they did not seem to know what that meant in practice. Most of the students in FG2 and FG3 selected Photoshop to complete the task. However, they, too, appeared to have chosen the software based on their familiarity with it rather than it being the best tool for the job: *“Due to my knowledge of how to use it, I was able to create it quite quickly.”* (FG2); *“I have used Photoshop before in college, which is how I knew to do certain things such as inserting images and cutting out images.”* (FG2); *“Photoshop is the only editing software I am familiar with so it allowed me to get started using basic controls.”* (FG2). These comments correlate with findings from case study FG1, in that the participants tended to use software and equipment that they were familiar with.

It was also noted that when filling out the post-task questionnaire, some students in FG2 and FG3 became aware of what might have been expected of them in the production of the advert, yet had chosen to ignore it. For example, one student provided this response:

*“The computers in the library had Adobe Photoshop which I am confident with using ... Also, I am confident with using DSLR cameras, therefore I was able to apply my camera knowledge in order to get the correct settings on the camera. I used a DSLR camera instead of a mobile phone camera because I think that quality was of vital importance to recreate the advert to my full potential.”*  
(FG2).

However, it was noted during the observation that this particular student did not actually take their own photograph and had used an image that had been downloaded from the Internet. This demonstrates an awareness of professional practice, but also indicates that this student did not feel that it was necessary to follow such practice for this specific task.

The students in FG2 and FG3 were observed from the start of their task. Once they had been given the brief they immediately turned to the computers. Most of the students used Adobe Photoshop or Illustrator to create their advert. After selecting the software that they were to use for the project, all of them then went to Google to download an image of a tin of Heinz Beans. However, none of the participants used tools within Google that would allow them to select a high-quality image<sup>12</sup>.

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<sup>12</sup> The image tab on Google allows users to select different sizes of images.

In FG3b, two students attempted to recreate the image of the tin using PowerPoint to create an illustration of the tin, rather than obtain a photograph of the tin and position it on the page (Figs. 7 & 8).

In FG2, one student drew the can on paper then scanned it into the computer: *“At the beginning of the task I went about re-creating the bean can advert the only way I knew by drawing the bean can then I scanned it in”* (FG2).

The delivery of the task brief (Appendix 5) to FG2 and FG3b included an introduction to the photographic studio, which was in a room adjacent to the computer laboratory. The group were told how to get a camera and were given access to a media technician. A tin of Heinz Baked Beans was provided for them to use to take a pack shot. However, not one of the students decided to take their own photograph, preferring instead to source an image through Google. Consequently, they mainly downloaded images that were of a low resolution and therefore unsuitable for print.

Generally, whenever they were being overtly observed, the students worked alone to create their adverts. However, covert observation indicated that they would turn to the person next to them when they had a question, or were unable to find out how to do something.

The selection of the typeface to use for the adverts was predicated on the students’ visual assessment of the original advert, rather than any knowledge of professional practice. Most of the students tended to recognise that the typeface used in the original advert had a childlike feel to it. However, they did not know how to search within the software for the specific typeface. Hence, they tended to choose one that was *“near enough”* (FG3). Alternatively, they searched online for a similar typeface: *“I went onto dafont.com but I couldn’t download the font I wanted so I used the one that was closest”*. (FG3); *“As I was unsure of what font to use, I decided to go to dafont.com and find a similar font to the original as possible”* (FG2); *“I changed the font as I couldn’t find or download the original”* (FG2); *“I used the website “dafont” and searched for a font which I was thought was relevant, I used words like “fun” and “childish” as that’s what I thought the font looked like on the advert”* (FG2). A further issue arose with the positioning of the text and image. Most of the students placed the tin randomly on the page, using their own visual judgement to decide where the tin should be placed. This often indicated that they had rather poor visual literacy skills.

Many of the participants failed to understand who the target audience for the advert was. They believed that, because the typeface was childlike, the advert was aimed at children and

failed to recognise that it is the children's parents who would be the purchasers of the product: *"Because the target age group were children, therefore the product needs to appeal and relate to them. The appearance of the advert and typeface."* (FG2). There were also some gaps in the students' understanding of professional production practices, for example knowledge of brand guidelines. However, this might be expected, considering their age and level of study.

It appeared that the reasons for their choice of software were predicated on how quickly they could complete the task, hence the choice of software that was familiar to them: *"I started off by going into Photoshop. The reason behind using Photoshop is one of the software I have used in the past."* (FG3b); *"I used Adobe Photoshop CS6/CC I used this because I am comfortable with the layout of Photoshop because I have used it before and I thought it would be the best program to use as it is a good editing software, providing for my needs."* (FG2); *"Because that is what we have used before and we familiar with it."* (FG3b). These comments indicate that the students were more concerned with their own needs rather than the needs of the particular task.

There was limited recognition that other software might be more appropriate to use, and little demonstration that they might be willing to learn an alternative software to help them with the task. For example, in FG1, a 3D software package could have been used to construct a virtual three-dimensional board game. Furthermore, the use of an industry-standard software package, such as InDesign, might have been a more appropriate software to use than Publisher, to create the rules book for the game. However, none of the participants even considered that there might exist a more appropriate software to use.

#### 4.2.3. Theme 3 – Participants' consideration of visual design rules

A wide range of abilities in the use of visual communication skills was demonstrated by the students. For example, the image in Fig. 6 demonstrates an ability to recognise that a photograph of the tin was required, as well as an ability to select an appropriate hand-written style of typeface. The typeface used by the student has a childlike feel to it, but is smaller and positioned differently to the original. The angle of the tin has been distorted to create a more pronounced curve at the bottom of it. The implication of the high camera angle used in this photograph is that it positions the viewer looking down on the tin. This shifts the power from the product to the customer as it makes the tin, and therefore the brand, look weaker. Furthermore, in contrast to the original advert, in Fig. 6 one can see that

the background is a different colour both from the tin, as well as from the original advert, thus changing the brand's iconic identity.

In example images 2 and 3 (Fig. 7 and Fig. 8) the background is lacking the gradient and is a different colour. This is a limitation of the use of PowerPoint for this task. In Fig. 7, the text not only uses the wrong family of typefaces, but it is also both ranged and positioned incorrectly, and has been seemingly left floating in mid-air. The tin has been presented from a high angle, which hands over power to the viewer rather than the brand. Meanwhile, in Fig. 8, although the typeface has been more appropriately selected, its positioning is more central both vertically on the page, as well as horizontally between the edge of the page and the tin. It is noticeable, however, that the two lines of text together have been arranged neither to the left, to the right, nor centred.

The participants' knowledge of layout and design appeared to be based on what they had seen before, rather than their understanding of design rules: *"It looked like same kind of typeface you would see in other history TV games, documentaries it was the same kind of writing, typeface you would see in those kinds of things."* (FG1); *"I was determined to get the gradient as close as possible to the tin. I based it on what I personally thought in terms of the aesthetics of the advert as well as the audience."* (FG2); *"I decided where would be best to position the text and image on my ad by looking where they had been placed on the beans ad and replicating where the image and text should be."* (FG3). It was also observed that some students used the original image on a layer below their own work, to help them guide their own designs, rather than using, for example, the rule of thirds.

Although the students were mainly able to construct an advert that replicated the design of the original, most of them did not appear to have any knowledge of design rules and principles. They tended to copy the positioning of the original advert rather than demonstrate understanding of design principles: *"For this I overlayed the advert with my own and turn the opacity down to gather an idea and place the text in that position."* (FG2). Some relied on their own visual skills: *"I looked at the original image and tried to get mine the closest to it as I could."* (FG2); *"I underlayed the original print advert and cropped the image and placed my layers individually in line with the artefacts within in order to get the best placement."* (FG2). These comments demonstrate the participants' superficial knowledge of design, rather than an understanding of layout and design rules and principles.

An observation of a small focus group of post-Millennials (FG4) enabled the researcher to see first-hand how young people produce images to post on the web. When asked to take

a picture or 'selfie' to upload to Instagram, the first subject, 'Student H', held up the phone in front of them as expected, but they held it on an angle. The angle, which produced a canted shot, appeared to be used to enable the student to hold the phone more comfortably. When questioned about why they were holding the phone in that way, Student H replied that they could, *"get more of their face in"*. It was observed that the focus frame on the phone became larger as they tilted the phone, until it surrounded the whole of their face. They remarked that it was uncomfortable for them to hold it straight, and that the tilted angle, *"gives a steadier photo"*. At that point they became engrossed with what they saw in the frame. They proceeded to adjust their hair, flipping it to one side saying that, *"curls look nicer"*. As they made these adjustments they said that they did not, *"do pouts and things"* and that, *"smiles look nicer"*. They then smiled at the camera. They spent some time adjusting their position, as well as the position of the camera, by making small increments to increase the natural light that was falling on their face. They took a picture, looked at it, immediately deleted it, then took another saying that they would not post that picture as, *"I don't have make up on, even though I go out without make up I wouldn't post a picture without me having make up on as I feel it wouldn't be the nicest photo of me"*. On questioning them on them why this was a problem to which they replied that, *"naturally do it 'cos everyone else does it"*. This indicated that for Student H, reality was less important than hyperreality<sup>13</sup>. Although they were quite happy to be in public without make up, they preferred that a record of it was not preserved or made public.

When it came to posting the picture online, Instagram was the preferred app used by Student H. The chosen photograph was adjusted so that it fitted in one frame. The student then flicked through each of Instagram's in-built filters to adjust the brightness of the image claiming that the filters helped to, *"make my teeth look like Simon Cowell's"*. The effect that these filters were having on the original photograph was observed. For example, the filter named *Valencia* had the effect of making their skin look smoother, although somewhat over-exposed. They were asked if they had noticed that by increasing the brightness to whiten the teeth they were also over-exposing the image, they replied, *"yes, but it doesn't bother me 'cos I still think it looks nice"*. They then proceeded to say how they would probably, *"add a 'stupid' caption, if I don't know what to say, I would probably add an emoji. I feel that the photo looks weird if I left it blank"*.

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<sup>13</sup> The term hyperreality was coined by Jean Baudrillard (Baudrillard & Glaser, 1994). It refers to a version of the truth that has been heavily mediated, thereby making it unrepresentative of the 'real' version of an event or object.

The way that this student created this image demonstrated a wide knowledge of image production skills. They were aware of framing and positioning of the subject within the frame. They were also clearly aware of the effect that good lighting had on an image, and had made small, incremental, movements in order to find the best natural lighting for the image. However, in adjusting the brightness via the filter, to improve the whiteness of their teeth, they had had no control over what else the filter brightened, thus over-exposing the image, rather than use the available natural light that they had previously sought.

The way that Student H had arranged, taken, filtered and posted her photograph was surprising, as this student is a highly competent photographer. They were asked whether they would ever use a camera to take a photograph to post online. They appeared visually shocked at this suggestion saying that they felt that people would judge them if they did that saying, *"I feel like I would get judged and that people would know. Like if I got a big fancy camera and took a selfie with it, I feel like you would get judged"*. This demonstrated an understanding of the limitations and the use of Instagram as a social medium rather than a professional medium. They added that only event photographs are professionally taken to use on Instagram, adding that most of them are tagged so that people know what they are. Again, this demonstrates that Student H was fully aware of the differences between professionally produced images and those produced for personal and social reasons. This was confirmed when asked why they used it, to which they replied, *"Cos everybody else has it... ..Use it to show people what I am doing"*, Researcher: *"So it's for social reasons?"*, Student H: *"yeh"*.

During this observation, there was clear evidence that Student H was developing visual production skills during the process of creating the image to post on their social media space. However, there was also evidence that they might be developing some increasingly illegal practices of image manipulation and misrepresentation during the process. In France, the use of manipulated images for professional use must now carry a label to say that they have been digitally altered (Eggert, 2017).

When post-Millennial Student B was observed, similar practices were found to be being used. However, Snapchat was the preferred mobile app used by Student B. They preferred to use this app saying that they, *"Wouldn't use [their] phone's camera, would use Snapchat. I would put a filter on it first 'cos I know I won't like it"*. Student B then proceeded to demonstrate how they used Snapchat with their mobile phone. They held their finger on the screen while the app scanned their face. They then scrolled through a number of filters that

added effects in real time to their image. For example, a filter of halo and angel wings saying that it was their, *“go-to filter for a nightclub or a night out”*. When asked why, they made no reference to the halo and wings that the app added to their image, but concentrated on the effect that the app had on their face, they said that, *“it flattens your skin out, making it look flawless, it gives you a little bit of blush, it sort of purifies your skin”*.

The effect that the app was having on the face was observed. While it did smooth out the skin, it also changed the basic shape, and adjusted the lighting of the face making the head wider at the top, including making the eyes larger, and narrower at the chin. When this was pointed out to them, it did not appear to bother Student B who said, *“because I haven’t got make up on I’d use a filter, this just acts like make up...the filters give my face more shape and gives me cheekbones”*. They then became very excited as they noticed one of the filters<sup>14</sup> - the flower crown - was back. All of the time that Student B was being observed they continued to look at their image through the mobile phone app and appeared engrossed by it. The filters that Snapchat adds to an image are more conspicuous than Instagram’s filters. There is a definite understanding by the viewer that the image has been manipulated and filtered due to the overlaying of the cartoon graphics. However, there is less understanding of the effect that the filter has on the original photograph, such as the smoothing out of the skin. Student B commented that they were quite insecure, and that they would never post a picture of themselves unless it had been filtered saying that, *“If I use a filter that’s ok, cos it’s not me”*. Their Facebook profile picture had been filtered so much that it was difficult to recognise the profile image as being of them.

When asked why they would not adjust any images of themselves using a programme such as Photoshop they replied, *“Although I have the skills to do it, I don’t want to spend that time, why would I when I can just put on a filter and it does the same thing”*. This demonstrates that although they were able to use Photoshop, they were seemingly not aware, or did not care, that the professional software had far more control over the manipulation of the images than the mobile app had. Looking at what Student B was learning from the use of the Snapchat app, there was a clear demonstration of their understanding that in order to get a good photograph often one first has to take a number of photographs. Knowledge of camera

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<sup>14</sup> Snapchat changes its filters regularly. Some of the filters are comedy based; for example, an elephant filter that adds an elephant’s trunk to your face; others add dog-like ears and noses to faces. The flower crown filter mentioned by Student B adds a circle of flowers to the head of the person photographed.

angles and lighting was also demonstrated, although as with Student H, the filters tended to make the images lighter, thus over-exposing them when used.

The third young person in this group, Student M, allowed the researcher access to their Instagram feed. The vast majority of the images posted there were text-based images, such as quotes or poems, that other people had either taken photographs of, or made. The only 'selfies' they had were ones that had been taken before a night out when they were dressed up. When asked why they posted so many images of quotes or book covers, they were not really aware why they were doing it replying, *"I don't know really, it might depend on my mood. If I think it is a really good photo then I'll share it. I'm not bothered by the number of likes I get, if I like it I'll post it"*. As with Student H, this demonstrates that the main motivation for posting pictures online appears to be because everyone else is doing it. As this practice appears to be linked with the social aspects of the media form, they were asked if posting pictures of books that they had read facilitated or encouraged conversations with others. Student M replied, *"Not often but sometimes someone will say that they have read it too or will ask to borrow it"*. When asked about whether they were concerned about breaching copyright when they reposted images they replied, *"No I don't really think about it, I supposed because I just use Instagram for fun I don't think it will have much of an impact. I just use it for fun and just post pictures of stuff"*. Asking how that impacted on how they thought about using images for professional purposes, they replied, *"I suppose it depends on the circumstances. If I was using it for uni [sic] purposes, I probably wouldn't think too much of it. As I have done it in the past and nothing has happened"*; adding, *"I would reference where the image came from"*. They would also use Google for inspiration for work, or would use an image from Google and *"play around with it to see how it would look"*.

The thematic analysis found that the participants had a high level of confidence that they were able to complete the tasks with little or no help from the university staff. They appeared to be more reliant on the Internet or their peers to help them when they encountered a problem. Their use of the Internet allowed them to expedite tasks, thus speeding up the production process. Little effort was made to use visual communication theory, even after it had been specifically taught to them. Instead, the participants preferred to use their own visual judgement to guide them.

#### 4.3. Situational Analysis

In an attempt to make sense of the world-view of the data subjects, a deeper analysis of their current working practices was conducted using the Cultural Historical Activity Theory (CHAT)



framework. The CHAT approach allows the researcher to examine the activity systems of the subjects as they are motivated to achieve a goal. The activity systems are the mediational structures that shape the actions of the individuals (Engeström, 2000). The activity system includes the *object*, the *instruments* or tools, the *community*, the *division of labour* and the *rules* that the *subjects* use. The behaviour of the students in these focus groups was analysed, using CHAT, to consider how the relationships within their activity system affect the way that they learn.

The activity system of the participants in these focus groups has been defined as follows:

#### 4.3.1. Subject(s)

The *subjects* in this study were undergraduate students, aged between 18 and 23, born between 1993 and 1998. Their backgrounds and previous learning indicated a wide range of digital and visual experiences. However, it is noted that all of the participants had been using computers and digital equipment for more than four years prior to joining the university. Previous subjects studied included computer science, media studies and photography.

#### 4.3.2. Object

The *object* within CHAT refers to the objective that the *subjects* hope to achieve through the process of the activity – the object of the exercise. The *object* can be different for individual subjects within a community, even though the outcome may remain the same. In these focus groups, from the lecturers' perspective, the *object* or object-orientated action was to introduce the students to the basic skills required by the programme, as a foundation on which to build future learning experiences. In FG1, which consisted of Computer Science students, this consisted of an introduction to game dynamics. In FG2 and FG3, an introduction to visual design and production skills were the lecturer's *object* for the Advertising students.

The *object* meets an individual *subject's* needs. For the students in these focus groups, although the outcome - a board game or an advert - remained the same, their primary *object*-orientated action appeared to conflict with their lecturers' *object* which was, to introduce the students to underlying theories used within the two disciplines. In contrast, the focus group participants' *object* appeared to be to complete the task, and move on as quickly as possible, rather than to learn something new. This is indicated through a dialogical analysis: Interviewer: "*Did you try using anything new?*". Student collective response: "*no not really*" (FG1); "*Straightaway after that lecture we went to the library and booked out one of the*

*pods” (FG1); “I know how to use this more than any other software. Due to my knowledge of how to use it, I was able to create it quite quickly.” (FG2).*

So that their *object* could be achieved, many students decided to use the Internet to speed the process up: *“Yes all printed straight off [Google]” (FG1); “The first thing I did to start off the task was to gather images in relation to what I had to replicate, so I searched for image of the Heinz beans can” (FG2); “First, I would try and find things myself by playing around with Photoshop and if I couldn’t find what I was looking for, I would ask my peers or Google.” (FG3b).*

Alternatively, when they could not figure out how to do something, some students simply gave up: *“I didn’t know how to do the writing in the bottom of the can. I tried but I couldn’t figure it out. So, I didn’t do that one.” (FG3b); “I tried adding a shape with the same colour on top but it didn’t blend so I just left it.” (FG3b); “I went onto dafont.com but I couldn’t download the font I wanted so I used the one that was closest.” (FG2).*

#### 4.3.3. Instruments or tools

The tools used by the data subjects were similar to those that the lecturers expected the students to use. However, there were a number of differences in the ways in which the students used the *instruments*.

The students’ choices of tools were computers and the Internet. However, their choices of the *instruments* (software) to use varied. In all cases, the participants selected software that they had used before, rather than use the opportunity to learn how to use a more appropriate software for the task. This often resulted in them spending more time than necessary, trying to work out how to complete the assignment, using software that was not designed for the task in hand.

*PowerPoint is a bit more smoother [sic] with how we could present the rules. Whereas in Word, it looked like a sheet. I felt it would be a bit more messier [sic] than PowerPoint where we could separate each section of the rules and how to play by slides instead of having bullet points for this and possibly again the rule list all messed up. (FG1)*

Despite using inappropriate techniques, the students in the focus groups were confident that their choices of *instruments* were suitable: *“Word or Publisher, mainly because you get more control so being able to drag things around, have multiple layers, it’s just a more powerful tool to use.” (FG1); “I used the typeface mentioned in the PowerPoint, as it looked like the*

*one used in the original advert.” (FG3b); “I then used an online font generator site called Font Meme in order to find a similar font to the one used on the advert.” (FG3b); “At the beginning of the task I went about re-creating the bean can advert the only way I knew by drawing the bean can then I scanned it in.” (FG2); “Publisher is good for business cards we could use to cheat and put back to back text but wouldn’t print so had to use Word again which took longer.” (FG1).*

Their choice of which software to use was based on the students’ past experiences: *“We decided we had all used Photoshop before in the past so we thought we would use what we were comfortable with already” (FG1); “Most comfortable with it” (FG1); “What we grew up” (FG1); “Because that is what we have used before and we familiar with it” (FG1).*

It was also noted that some students decided to use pen and paper to produce their digital artefacts, which they either scanned into the computer, or simply attached to a card using glue. By contrast, to communicate with each other they often resorted to using digital technology such as OneDrive, email or Facebook.

#### 4.3.4. Community

During the activity process, the students dipped in and out of a number of different *communities*. The students were given a task during tutored sessions, which they were to complete by a specific date. The Computer Science students (FG1) were given two weeks to produce the board game. The Advertising students (FG2 and FG3b) were given one week to complete their advert.

The tutored sessions were facilitated by a lecturer, and represented two hours a week of contact time. The students, as is consistent with study in HE, were expected to also spend between three and four hours per week on self-directed study for the task.

In the first instance, they were in the classroom or schooling *community*. In this *community* students are receivers of knowledge. Historically and culturally, the schooling environment leads to different members of the group adopting different roles. The teacher is in the role of leader, and imparter of knowledge, whereas the students are followers, and consumers of that knowledge. The characteristics of the teacher and student relationship is similar to the Parent – Adult – Child (PAC) model in psychology (Berne, 1964). In this model, the parent role assumes bossy, impatient characteristics. The child role is more emotional and is characterised by an eagerness to please and an unwillingness to appear weak or incompetent. The child actor at work in the PAC model can be identified in some of the

statements made by the students in the study groups: *"Didn't really want to ask"* (FG1); *"I received help from one of my peers and I also did some research on Google"* (FG3b); *"I used the provided PowerPoint as a guideline. I asked my girlfriend (name) for help on small things like changing in-between the lines of text, and how to copy and paste the Heinz can into the second artboard."* (FG3b).

Although working in the university classroom, the schooling *community* was overlooked by the focus group participants. Consequently, assistance given by the tutors in the form of tutorials was often dismissed: *"We had the lecture in the middle of the two weeks with (tutor name) and he said he would go round and talk to everybody but we didn't really get any help from him"* (FG1); *"I couldn't figure out how it worked again so I had to ask my lecturer how to do it...I mainly used my basic knowledge and then I just played around with the software until I was happy with the results."* (FG2); Question: "Did you get any help?" *"Only from the tutorial"*<sup>15</sup> (FG3b).

The wider *community* for these students included the global network facilitated by the Internet. This appeared to be the *community* that the participants felt most comfortable working in: *"We used images from the Internet for reference"* (FG1); *"Google is the only search engine I really use"* (FG1); *"I watched a few video tutorials on YouTube on how to create a vignette on Photoshop, as I was unsure of how to do this."* (FG2); *"I Googled a font website and searched for a typeface which was similar to the original"* (FG2); *"I did look the Internet to help with the imaging of the advert other than that I didn't really do anything else."* (FG3b); *"I just worked from copying it off the Internet."* (FG3b); *"I then used an online font generator site called Font Meme in order to find a similar font to the one used on the advert."* (FG3b).

Students in FG1 also used the *community* of the Internet to communicate with each other: *"We started to add each other on Facebook. We added each other into a group"* (FG1); *"Private group adding each other to, and this was one of our main forms of communication"* (FG1); *"Communication online – via Google Docs - ease of use and accessibility"* (FG1); *"Communication – Facebook"* (FG1);

#### 4.3.5. Division of Labour

The *division of labour* was shared between the student and digital technology. For example, students would use the Internet to source and procure the image and text elements required

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<sup>15</sup> The tutorial referred to by the student had been created by their lecturer specifically for the students to use.

for their artefacts, then download them: *“We did use the Internet just to research rules like what we had originally in mind”* (FG1); *“To reproduce the Heinz advert I had to get a few images from Google images.”* (FG2); *“I then used an image of a Heinz beans can that I found online”* (FG3); *“I then used an online font generator site”* (FG3).

This propensity to use the Internet to share their labour places the participants in a number of different roles, such as procurers, collators and creators. In the procurer role, the students collected images, typefaces, and information from Google. In the collator role they assembled these elements together. They then moved to the creator role, where they used the assembled elements to make own interpretation.

#### 4.3.6. Rules

The *rules* used by the students were tentatively based on a naïve understanding of professionalism. The students in these focus group appeared to believe that ‘speed of execution’ was more important than the need for a high-quality product. Numerous references to speed were made by the students, both directly and indirectly: *“It just felt it would have saved us manually printing out and save paper and it would have saved time”* (FG1); *“The software is probably the fastest and best way to create a piece of work”* (FG2).

The participants’ use of the *rule* of ‘speed’ had further implications on the *rules* of professionalism. In the creative industries, a *rule* closely adhered to is that of copyright and intellectual property laws. There was little adherence to copyright laws exhibited by any of the participants. Most of them were content to download images and typefaces from the internet to use in their productions.

Finally, the *rules* of learning within a HE environment appeared to differ between the students and the lecturers. The students’ *rule* of ‘speed of execution’ leaves little room for the deep learning required in HE. None of the students used the production of the artefact as an opportunity to develop an understanding of the *rules* for ‘visual communication’ that are required in a professional sphere.

#### 4.4. Summary of findings and analyses

The findings and analyses from the thematic analysis and the situational analysis are summarised below.

The themes that emerged from the thematic analysis of the data were as follows:

##### **1. Confidence**

- a. Participants' over-confidence in their ability compared to their actual ability
- b. Participants' reliance on the internet or peers for help rather than staff

##### **2. Participants' perception of professional practices**

- a. Participants' desire to expedite tasks quickly – speed over quality

##### **3. Participants' consideration of visual design rules based on personal preferences**

- a. Participants' disregard of traditional academic visual design rules

Although a single central theme was not identified, a synthesis of these three themes suggests that the primary concern for the students in these focus group was their 'need for speed'.

The identification of different themes held slightly different significance in each of the focus groups. For focus groups 1, 2 and 4 the 'speed of execution' was strongly highlighted. In FG1, there was a high level of self-confidence in the participants' digital ability, which did not appear to match their performance. This was further identified in FG2, where the students were more confident of their ability to use appropriate computer software than those in FG3. In focus groups 1, 2 and 3, there was little awareness demonstrated of professional practice. Many participants believed that the 'speed of execution' far outweighed the need to develop a quality product.

The situational analysis, using the CHAT framework, found that the student and the lecturer appeared to be operating in two different CHAT activity systems. This was defined by the concept of the *community* and the *rules*. The lecturer operated within the *community* of HE, whereas the student appeared to be more comfortable within the *community* of the wider world via the Internet.

The fact that the students and the lecturers appeared to be operating in two different communities affected the *object* of the activity. The task was identified as the production of

a visual artefact that would be suitable in a professional environment. For the lecturer, the production of the artefact took place in the *community* of the university classroom. There, the *division of labour* involves the student as *subject* and the lecturer as the more knowledgeable expert. The labour is divided between them. However, the deviance found in the *communities* affected who the students perceived as the more knowledgeable expert. The students were working in the *community* of the Internet, rather than the classroom. In the Internet *community*, the collective, but non-specialised knowledge of the world is dominant. Furthermore, the Internet promotes shallow learning through its functionality that is driven by hyperlinks, which encourage people to quickly move from one subject to another.

The reluctance of the students to ask the staff for help was indicative of a lack of perception of a formal hierarchical structure within the learning environment. The students relied on the Internet and technology to share their labour, where a similar non-hierarchical structure exists. All of the focus groups were reluctant to ask staff for help, preferring instead to use their peers or the Internet to find out how to do something. If students would prefer to use the collective knowledge of the Internet, or ask their friends for help in solving problems, when they too might not have the answers, implications for teaching and learning in HE are indicated.

Deviances also occurred in the *rules* used by the students. In a professional environment, one of the *rules* of creativity and professional practice is that of adherence to copyright. Many of the subjects deviated strongly from this *rule* and downloaded images from Google in order to expedite the creative process quickly.

Another deviance to the *rules* was found in the teaching and learning environment. In a learning environment, the teacher builds in learning opportunities for students. However, in this research, it was noted that the students did not see the task as a learning experience, but more as something that just had to be done in order to get through the lesson. This may well relate to a student's need for credentialism, rather than actually wanting to learn – rather like a box-ticking exercise.

All of the participants in the focus groups tended to use their own knowledge, or previous visual experiences, rather than use any traditional design rules to determine what was important during the production of their visual artefacts. Furthermore, even when some design principles were explicitly taught to the students in FG3b, most of them deemed that they were unimportant, or that they were rules that could be broken.

The *instruments* used by the subjects were ones that would allow them to get the job done quickly, rather than being the right job for the task. This manifested itself in the participants using techniques and software that were already familiar to them.

The data collected from the questionnaire distributed to FG3 indicated that the participants' prior use of technologies was consistent with OFCOM's (2008) report on UK children's media literacy. Over 60% of the participants in FG3 got their first computer before the age of 13 (indicative years 2008 to 2013), with the highest number (53.8%) between the ages of 8 to 13 (indicative years 2003 to 2013). Over 80% of the participants had obtained a PC laptop, rather than a desktop or Apple computer. However, all of the students first got access to the Internet, on average, two to three years younger - between the ages of 5 to 13. This is consistent with OECD (2015) findings that found that 15-year olds first had access to computers and the Internet around the age of ten. However, they also found that for many of those young people, the first computers that they used did not have Internet access (OECD, 2015, p. 39).

In summary, getting the job done quickly and easily was very important to the students participating in this research. They tended not to look for alternative solutions, and their choice of instruments used was based on familiarity rather than using the right tool for the job.

#### 4.5. Chapter Summary

The analysis of the data from the four focus groups enabled a number of key themes to emerge:

- The students' confidence in their own ability
- Their use of familiar software
- The speed of production
- Their limited understanding of professional practices
- Their indifference to copyright laws
- Their reliance on the Internet to supply answers to problems.

It was clear that the students were able to use some digital software such as Word and PowerPoint, reasonably well, albeit at a seemingly basic level. They were also proficient in using the Internet to source and download images, as well as in the use of the mobile phone camera and mobile apps to post images onto social media. They were adept at using the Internet and social media to communicate with each other, and used these technologies



often as preferred methods of communication. This is consistent with the findings of boyd (2015), OECD (2015), and Rainie, Brenner & Purcell (2012) who found that young people tend to use computers to search the Internet, and for social purposes. It also reflects work by Bennett & Maton (2010), Bullen et al. (2009), Conole et al. (2006), Jenkins (2007) and Kennedy et al. (2007). They found that young people are no more likely to be competent in the use of digital media tools than anyone else.

It was also evident that the students in FG2 and FG3b struggled with the concepts of visual design and production. They especially lacked the specific software skills that are demanded by the creative industries, such as Adobe Photoshop or Illustrator. Furthermore, they did not appear to see the necessity to learn these software applications to high levels, preferring instead to take short cuts by using familiar software that was not fit for the task. All of the students, in each focus group, relied on software with which they were familiar in order to expedite the production process, rather than using the task as a learning opportunity. This propensity to favour speed over quality has potential implications for both their own learning and development, as well as for the needs of the industries in which they wish to pursue careers. Students in earlier cohorts have been prepared to sit down and learn relevant software skills, whereas it appears that the more recent undergraduates just want get things done quickly.

Their ability in the use of some software, albeit in some cases inappropriate software, and their use of Google to download images, appeared to give the students in the focus groups a degree of confidence that they were able to produce the tasks given to the required level of skill. However, these are not necessarily the skills that are desired or wanted by the creative industries. The use of some of these practices may be considered detrimental to the industry and therefore discouraged. For example, using downloaded images or images that have been heavily manipulated are considered illegal practices. This tendency to favour speed over quality, with an over-reliance on the Internet, is an area discussed in length by Lanier (2010) who fears that our continued dependence on digital technology will erode jobs and lead to a world where only a tiny minority benefit (p. 77).

## Chapter 5. Discussion

### 5.1. introduction

This chapter discusses the main themes that emerged from the thematic analysis and contextualises those themes with reference to the situational analysis. It sets out the key findings and discusses the implications of those findings for HE educators of visual communication. In that way it will address the key objectives of the research and consider how they have been met. It will go on to state the contributions to knowledge that can be asserted by this study.

The aim of this research was to present:

A study of post-Millennial students, entering a higher education advertising programme, that investigates the extent to which they have developed their visual communication skills through their use of widely available digital media technologies.

To do this the following objectives were set:

1. To examine the key debates around digital technology and the post-Millennial learner.
2. To identify the key skills needed to produce effective visual communication artefacts for commercial use.
3. To identify, through a study of new learners of visual communication:
  - a. what digital technologies they have previously used to develop visual artefacts,
  - b. what transferrable skills they currently possess,
  - c. which skills still need to be developed to prepare them for a career in visually-based creative industries.

The following chapter will discuss how these aims and objectives have been met. The discussion is informed by key debates around what constitutes good visual communication, together with an examination of how people learn. Both topics provide theoretical underpinning for the research.

## 5.2. Research Objective 1

### **To examine the key debates around digital technology and the post-Millennial learner.**

The findings on the key debates around digital technology, and post-Millennials use of them, has been divided into two sections. Participants' use of digital technology, and their need for speed.

#### 5.2.1. Participants' use of digital technology

##### 5.2.1.a. Key Findings

In contrast to Prensky's (2001) findings, the literature review found that young people tend to use digital technologies only at a superficial level (Bennett & Maton, 2010; Bullen et al., 2009; Conole et al., 2006; Kennedy et al., 2007). Furthermore, statistics suggest that young people tend to use the Internet primarily for social reasons and to keep in touch with friends (OECD, 2015). The inferences that can be drawn from this are that if post-Millennials are using digital technology on a regular basis, and they are using it for social reasons, then they are likely to develop skills that are reinforced by feedback from their social groups; for example, when they produce and post an image that is 'liked' on social media.

The use of the CHAT framework highlighted deviances within the *communities* that the participants were working in. The students' propensity to use the Internet suggests that they appeared to feel more comfortable in online communities, rather than within the *community* of the university.

The online communities inhabited by young people allow them to interact with other liked-minded people. Jenkins (Jenkins, Ito & boyd, 2016) explains how many teens "associate online with people they encounter face to face", and that young people often, "form strong emotional bonds with people they regularly encounter online" (p. 11). Young people's participation in online networks can often overcome feelings of frustration they might have in their 'real' lives. These online networks allow young people to "express themselves and assert control over their lives" (Jenkins, Ito & boyd, 2016, p. 47). Consequently, for the post-Millennial, the confined community of a university classroom might feel restrictive and claustrophobic, especially if they feel that their creative practices are being called into question.

Drawing on the evidence extracted from the focus group data sets, there were indeed strong indications that the study participants relied heavily on the Internet. They used the Internet to search for information, and to download images and text to use in the production of the tasks. In most cases, this was their first route of enquiry. Few of them considered other alternatives such as asking staff for help, although some did ask their peers for help when they needed it. However, neither their friends, nor the staff, were usually their first option. Coding of the data found that students often used the term 'Google' when they were referring to how they found information. Further evidence of their preference for their use of the Internet can be found in the students' online search for typefaces and images. The participants believed that they were able to find whatever they needed by using the Internet.

#### *5.2.1.b. Implications*

The development of skills, such as the ability to search for information and resources online is a form of experiential learning. The experiential learning cycle, while acknowledging the place of practical concrete experience within the learning cycle, also notes the need for observational reflection, abstract conceptualisation and active experimentation in order to assimilate the learning from the experience (Kolb, 2015). Therefore, to make sense of a learning experience it is necessary to reflect on that experience to conceptualise it for future experimentation. For the post-Millennials in FG4 observed for this thesis, the reflective process took place when they saw how many 'likes' their images received. It was noted during the observation, that if they did not receive a certain number of 'likes', they would remove the image (reflection) and focus on creating images (experience) that were similar to ones previously produced, and which had received a desired number of 'likes'. However, there was little evidence of abstract conceptualisation and active experimentation taking place that would complete the full learning cycle. The constant repetition of this behaviour is likely to become entrenched, thus limiting the post-Millennials' capacity for growth (Dewey, 1938). The feedback received from friends is also likely to increase the behaviour: "Peer pressure is the great power behind adolescent behaviour...adolescent choices become life choices." (Lanier, 2010, p. 53). The learning that takes place in this online environment is more in line with Behaviourism, where habits are established through a process of reward and punishment (Skinner, 1953).

The students surveyed for this research appeared comfortable in their online networks. This is not remarkable. The post-Millennial is used to using the Internet to search for music, films, television shows, celebrity gossip, and information (OECD, 2015). For them, the Internet has

become their main portal to media (OECD, 2015). Consequently, it has also become the main way that they also consume advertising. Online advertising is very different from traditional advertising. It comes in the form of single, thumbnail-sized images, links to websites, or in the form of User-Generated Content (UGC) such as selfies taken in the local bar, vlogs<sup>16</sup>, or via location services that show you where your friends or celebrities are shopping or visiting. The images used in these messages are often presented through poor visuals that give an air of authenticity. They are usually aimed at younger generations, including young children. However, Morozov (2013) suggests that; “such “authenticity” is much rarer than we think” (p. 156). These new advertising messages are the ones that post-Millennials are consuming. Thus, older advertising artefacts, such as television adverts, or print based adverts, are seemingly less relevant to them.

The participants confidence in the use of the Internet might mean that they become more motivated because they are able to search for information that they require, and thereby satisfying their desire for knowledge. Consequently, the traditional role of the teacher as gatekeeper of knowledge might be compromised, and teachers may have to make changes to how, and what, they teach to facilitate those developing needs (Kop & Bouchard, as cited in Thomas, 2011). This correlates with the view made by Downes (2009) who said that the rise in online learning might change the role of the teacher for good.

### 5.2.2. Participants’ ‘need for speed’

#### 5.2.2.a. Key findings

The surveyed students frequently referred to the ‘speed of production’ as being the most important aspect of getting the job done. Further coding within the theme of speed indicated that the participants’ selection of which software to use was often driven by their desire to expedite the task quickly. When selecting which *instruments* (software) to use, the participants based their choices on what they were already familiar with, rather than spend time learning how to use the correct software for the task. This ‘need for speed’ was a strong theme running throughout the research.

The participants’ perceived ‘need for speed’ suggests a relationship with their increasing dependency on the Internet. The architecture of the Internet means that people skim-read

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<sup>16</sup> Vlogs are video blogs. They are often created by young people or celebrities. Vloggers (people who create vlogs) are popular with young people. Famous vlogger Zoella regularly promotes products via her YouTube channel -<https://www.youtube.com/user/zoella280390?feature=mhee>, and also has her own brand that is sold on high streets, as well as her own website (<https://www.zoella.co.uk>).

information and use hyperlinks to delve deeper into a topic, rather than read one page at a time. The search technology used by Google is also designed to encourage users to skim-read surface content, so that they will click on as many links as possible (Carr, 2010). For post-Millennials, who are used to using the Internet to search for information, this propensity to dip in and out of things and to collect information bits as they go, has become commonplace (Carr, 2010; Lai & Hong, 2015; OECD, 2015).

#### 5.2.2.b. Implications

Placing the research findings from FG1 to FG3 in the context of the CHAT framework highlighted deviances between the participants' expectations as undergraduates, and the expectations of the HE lecturer. The *rules* that the survey participants used were based on their desire to complete the task quickly, which implies surface learning. However, Tapscott (2009) does not believe "that multitasking—or more properly, quick switching—is necessarily bad for Net Geners' brains. It may, in fact, help them. If they can learn to feed off of more sources of information in real time, while they are writing an essay or tackling a complicated problem" (p. 117). He suggested that the Millennial learner learns best from doing, rather than sitting and listening. Tapscott also identified a need for speed in the Millennial learner. However, the participants in the focus groups used for this study did not appear to learn about visual communication much from doing the tasks.

### 5.3. Research Objective 2

**To identify the key skills needed to produce effective visual communication artefacts for commercial use.**

These key skills were identified as knowledge and understanding of visual communication rules, and adherence to copyright and Intellectual Property law.

#### 5.3.1. Participants' visual communication rules

The literature review established that the ability to see is a learned skill (Derogowski, 1989; Gregory, 1994; Sacks, 1995). Furthermore, the ability to make sense of visual messages is dependent on individuals' perspectives (Eco, 1976; Harrison, 2003; Hoopes, 2014; Kress & Van Leeuwen, 1996; Messaris, 1994; de Saussure, 1959). However, in contrast to digital native advocates, young people were not found to be particularly proficient in the ability to encode and decode images (Brumberger, 2011).

#### 5.3.1.a. Key findings

The *rules* used by the lecturer, in the tasks given to FG2 and FG3, were golden ratio and spiral, and Gestalt principles of proximity and continuity. They formed the design *rules* used in the Heinz advert. However, even after the use of these *rules* had been explained to the student participants, they chose not to follow them. The participants, instead, followed their own *rule* of what looked right to them. When they were asked to reflect on the visual aspects of the artefact, they did not appear to ‘see’ many of the flaws in their images. There were a number of problems contained in the students’ designs, which even though they were seemingly aware of them, they chose to disregard. This implies that the participants thought that these imperfections were irrelevant, calling into question what they perceived as a professional practice. Furthermore, despite having visual theory pointed out to them, they did not appear to think that it mattered.

There was strong evidence that the students in FG4 based their assessment of how good their image was on the number of ‘likes’ they received. Piaget’s (1896-1980) theory of constructivism, when placed into the context of this study, could mean that young people are inferring that when someone ‘likes’ their pictures, they have been well produced and constructed. They receive feedback from their friends, in the form of a number of ‘likes’, that reinforce the young person’s belief that their ability to produce images is good. However, the person who has responded to their image may have liked the image for entirely different reasons. This could also mean that the creator of the image may develop misplaced confidence in their ability to produce effective visual communication materials.

#### 5.3.1.b. Implications

This finding relates to the literature for the digital competences of the post-Millennial learner. Jenkins (2009) expressed concern that a lack of underpinning knowledge by the creator of an image might have a significant impact on the communication of that image. This was, he felt, particularly worrying within the visual arts professions, such as advertising, marketing, photography, film, and television.

The students’ rule of speed over quality further exacerbates the potential implications for professional practice. The production of a quality image for print cannot be obtained through the downloading of images from the Internet, which are of often poor quality.

The potential for miscommunication is also a cause for concern if post-Millennials are basing their *rules* for what constitutes a good image on their opinions and those of their friends. Surowiecki (2004) says that diversity is essential for the development of creativity, as it “adds

perspectives that would otherwise be absent and because it takes away, or at least weakens, some of the destructive characteristics of group decision making.” (p. 29). This diversity of views is incompatible with the approach taken by the students.

### 5.3.2. Participants’ consideration of copyright and intellectual property laws

#### 5.3.2.a. Key findings

The participants taking part in this research appeared unconcerned about copyright or intellectual property laws. This was demonstrated when they downloaded images and typefaces from the Internet. Young people’s defiance of copyright laws was found to be pervasive in young people, as indicated by Palfrey et al. (2009). They found that for most young people, the “wrongness of the behaviour appears not to have much effect, because social norms around copyright content have already strayed so far from what the law dictates.” (Palfrey et al., 2009, p. 88). The seeming disregard of those laws by the participants’ in this study suggest similar concerns. However, research conducted by the NUS (2016) found that an overwhelmingly large majority of students wanted the legal aspects of copyright and Intellectual Property laws explicitly taught to them with specific reference to their studies.

The use of existing media in the construction of creative content was found to be commonplace with young people (Jenkins, Ito, & boyd, 2016). Fair use of online media was considered to be the *rule* that these young people worked to, even though few knew what that meant in practice. “The fair use doctrine allows for legal reproduction of a copyrighted work in limited circumstances, including for purposes such as criticism, comment, news reporting, teaching scholarship, or research (Palfrey, Gasser, Simun, & Barnes, 2009). This practice has potentially opened up access to the creative industries that had previously been closed to many people due to the gatekeeping nature of large media corporation. However, concerns have been raised about how a reduction in this monopoly might led to a reduction in the production of high-quality, high-budget media products (Towse, 2016).

#### 5.3.2.b. Implications

The practice of ignoring copyright and IP law mean that there are a growing number of people who believe that they can create content from previously existing content and manipulate it to suit themselves. Much of this creative content uses images, video and music that is sourced on line (Perrin, 2015). However, the fair use of existing media products can be open to interpretation. There are many examples of how pre-existing media products have been appropriated and reused to create artworks that have been more successful than



the original, thus potentially infringing the law's 'fair use' clause; for example, *Cariou v. Prince*<sup>17</sup>, *Rogers v. Koons*<sup>18</sup>, *The Associated Press v. Faurey*<sup>19</sup>. Those cases demonstrate that the law on copyright infringement is not always clear. In *Cariou v. Prince*, Richard Prince, a well-known appropriation artist, had used photographs taken by Patrick Cariou and adapted them thus creating new meaning. Initially the court found for Cariou. This ruling created a great deal of controversy in the art world on the subject of artist intent and subjectivity. An appeal court subsequently overruled the initial decision (United States Court of Appeals for the Second Circuit, 2011). In the *Rogers v. Koons* trial, Koons was forced to pay a monetary settlement to Rogers for the use of his image (United States Court of Appeals for the Second Circuit, 1992). Whereas, in the *Associated Press v. Faurey* case, an out-of-court settlement was agreed that shared the proceeds made from Faurey's image (Kravets, 2011).

As digital technology production tools develop, and the misappropriation of images pervade, fake image detection is becoming harder to spot and easier to spread online. It is especially worrying if the image creator has no underpinning knowledge of how images communicate messages, or of the implications of copyright and intellectual property laws. The interpretation of those images, often through the Internet, is open to misinterpretation due to the cultural-historical background of individuals. This lack of knowledge might affect the meaning of the message that is communicated - a view concurred by Barry (1997), Foss (2004), Harrison (2003), Hoopes (2014), Kress & Van Leeuwen (1996), Messaris (1994) and Parsons (1987). Consequently, should this practice continue, there is a very real danger that images used in corporate communications, such as advertising and marketing, might be made that misrepresent the truth.

However, Jenkins (2009) believed that the skills that young people were developing through their participation in online content creation would serve them well in the future, suggesting that we "encourage youth to develop the skills, knowledge, ethical frameworks, and self-confidence needed to be full participants in contemporary culture" (Jenkins, 2009, p. 8). Those skills include the acquisition of resources, the collation of those resources, and the ability to recreate them into something new and meaningful to them (Jenkins, Ito, & boyd, 2016).

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<sup>17</sup> *Cariou v. Prince*, No. 11-1197 (2d Cir. 2013) <https://law.justia.com/cases/federal/appellate-courts/ca2/11-1197/11-1197-2013-04-25.html#>

<sup>18</sup> *Rogers v. Koons*, 960 F.2d 301 (2d Cir. 1992) <https://www.copyright.gov/fair-use/summaries/rogers-koons-2dcir1992.pdf>

<sup>19</sup> *The Associated Press vs. Faurey* <https://www.wired.com/2011/01/hope-image-flap/>

### 5.4. Research Objective 3

To identify, through a study of new learners of visual communication:

- A) What digital technologies they have previously used to develop visual artefacts
- B) What transferrable skills they already possess
- C) Which skills still need to be developed to prepare them for a career in visually-based creative industries

#### 5.4.1. What digital technologies they have previously used to develop visual artefacts.

##### 5.4.1.a. Key findings

The main technologies used by the participants during the production of the tasks for FG1 to FG3 were the Internet, PowerPoint, Publisher, Photoshop and Microsoft Word. In all cases their choice of which software to use was based on previous usage and familiarity. However, it was found that although they were able to use some aspects of those software, they tended to only use it at a rudimentary level. This meant that they often struggled to complete the task to a high standard.

Some students reported how they had spent a considerable amount of time trying to use familiar software for an unfamiliar task. This caused them some frustration, which led them to simply give up. That said, most of the students were confident with their choices of technology. Consequently, they did not seek a more suitable alternative.

The use of mobile apps by the participants in FG4 demonstrated how they used the apps intuitively. The speed at which they approached the taking and manipulating of their images indicated that the apps' interface was easy to use. The pared-down functionality of the app would naturally facilitate this speed of use.

The participants' prior use of digital technologies is consistent with the findings of Bullen et al. (2009), Conole et al. (2006), Kennedy et al. (2007) and Lai & Hong (2015). Bullen et al. (2009) also found that the choice of technology was predicated on familiarity, cost, immediacy and context. However, in contrast to the participants in FG1 to FG3, they found that "that within an identified set of tools, students were able to select which was better suited to a given task." (Bullen et al. 2009, p. 8). This was not observed in the participants in this research. This could suggest that post-Millennial people might be struggling to use traditional digital technology more than previous cohorts. The postulation that young people are less reliant on traditional digital technology such as desktop computers is substantiated by the findings of Lai and Hong (2015). They found that "The most popular tools that the

respondents used daily included laptop computers, Internet website, Google, MP3/iPod, Facebook/MySpace and mobile phone.” (Lai & Hong, 2015, p. 735). Furthermore, the use of digital technologies by young people has been found to be mainly for social reasons and to access the Internet (OECD, 2015).

#### *5.4.1.b Implications*

An examination of the results from FG4 indicated the participating students’ predilection to use in-built mobile app tools, such as Snapchat and Instagram, to create images. The use of these tools requires only a shallow form of learning of visual communication skills. The software has in-built templates that enable images to look ‘pretty’ without requiring the user to have any knowledge of design. Instagram and Snapchat use filters that manipulate the images taken, by adjusting lighting, contrast and form, to create a hyperreal photograph. These filters tend to be restricted to those that will increase the brightness of a subject, or a ‘smooth’ filter that improves a person’s skin tone. This allows the user to quickly create appealing visual content that they then post as Online Content Creation (OCC) in social media spaces such as Facebook or Instagram. Reduced functionality of the apps, and the post-Millennials’ tendency to use digital technology for browsing the internet or social purposes, has implications for the development of visual communication skills. The students’ in FG4 had access, and the ability, to use professional image manipulation software, yet preferred not to do so. This correlates with the findings of Van Dijk (2012), who argued that access to digital technology did not mean that people would necessarily use the technology.

#### *5.4.2. What transferrable skills they currently possess*

##### *5.4.2.a. Key findings*

A synthesis of the multi-layered analysis of the findings from these focus groups was demonstrated in the students’ ‘need for speed’. The main skill identified in the students in these focus groups was in their ability to search for information via the Internet. However, they also tended to use the first options that came to hand. They often used the Internet so that they could complete tasks as quickly as possible. However, this was often at the expense of producing a high-quality visual artefact. They demonstrated an ability to procure, collate and re-assemble existing media artefacts. The post-Millennials’ ability to quickly collect, assimilate and curate visual artefacts might be transferrable to a newly developed form of marketing known as brand aesthetics. Websites such as Olapic.com, Snapwire.com, and Instagram.com capitalise on these skills. These websites are creating a new form of advertising; one that is fuelled by the wide availability of different visual communication

artefacts available through social media. Olapic refer to this form of advertising as enabling brands to, “visually communicate in a new way, using real customer images and videos in every touchpoint” (Olapic, 2018).

#### *5.4.2.b. Implications*

The findings from these focus groups suggest that the participants were proficient in the use of the Internet to source, acquire and collate information and resources online. However, it was noted that their use of traditional digital technologies such as computers and industry-standard software was limited. This concurs with the findings of Lai and Hong (2015) and Kennedy et al. (2007). However, as previously noted their studies did not consider the availability of the latest digital technologies such as mobile apps.

A deeper analysis of the data revealed that, in line with Bennet & Maton (2010), Bullen et al. (2009), Conole et al. (2006) and Kennedy et al. (2007), the students in these focus groups tended to use the digital technologies superficially. The nature of this use was highlighted by some of the students’ use of software such as PowerPoint to produce their adverts (FG3b), or in the use of the Internet to source images that they then downloaded, printed off, and glued to a pizza box (FG2).

Kennedy et al. (2007) found that young people’s use of media manipulation tools for video production and image manipulation was low. However, since their study digital technologies have become more widely available, especially for mobile devices. Therefore, this is likely to have changed. When their research was conducted, mobile technology was still in its infancy, and the availability of mobile apps that could edit video and images, non-existent.

The observation of the students in FG4 showed competence in their use of mobile technology and mobile phones applications. However, the observation of this focus group also accentuated their use of these technologies for social reasons (boyd, 2015; OECD, 2015; Thinyane, 2010; Twenge, 2017). The inference from this is that despite changes in technology, young people still tend to use the digital tools at a superficial level. Furthermore, most of the students did not exhibit a desire to learn any new software in any depth, but instead appeared to rely on their previous knowledge to serve them with skills to complete something new.

### 5.4.3. Which skills still need to be developed?

#### 5.4.3.a. Key findings

It was observed, during the visual construction stage of the tasks, that the participants tended to use their own visual judgement about whether the image looked right or not. This contrasted with *rules* that academics and professional practitioners would use for visual production, which are based on theory, design principles and established practices. These principles and practices are used widely in visual-based programmes, and include the golden ratio, the rule of thirds, semiotics, or Gestalt principles (Arnheim, 1974; Eco, 1976; de Saussure, 1959; Wertheimer, 1938).

The literature review established that competency in visual literacy is a learned skill (Derogowski, 1989; Gregory, 1994; Sacks, 1995). The post-Millennial has generally had access to a wide range of visual materials from a very early age. Most children are taught to read through the use of picture books, and therefore learn very quickly how to interpret simple images. However, it is the nuances of visual communication that are of interest here, especially when the images are used in public spaces such as on social media or in advertising materials. Although many people appear to be able to draw inferences from pictures, it is not always as easy to encode an image to communicate a specific message. This discrepancy can lead to frustration for the new learner of visual media, which in turn can lead to withdrawal from their academic programme.

The view that competency in visual literacy and visual communication is a complex yet necessary skill was discussed by Barry (1997) who said that, "Perception is a dynamical system that utilises the input from the body's sensory systems, synthesises this with memory and understanding, and creates from both an integrated sense of self and mind" (p. 36). Barry goes on to say that, "What we see, then, is not a direct recording of what's out there, but a mental configuration that we interpret as an image – the end result of a highly exploratory and complex information-seeking system." (p. 37).

The ability to interpret images and understand the subtle nuances encoded into an image needs to be specifically taught to people (Barry, 1997; Foss, 2004; Harrison, 2003; Hoopes, 2014; Kress & Van Leeuwen, 1996; Messaris, 1994; Parsons, 1987). However, consistent with the findings of Brumberger (2011), the participants in the focus groups for this research were not particularly proficient in visual communication.

The visual literacy skills of the participants in this study appeared to be weak. Although they demonstrated some ability to produce visual artefacts, they tended to rely on their own perception of what they believed looked right to guide them. In many cases this was reliant on their past experiences of what had been 'liked' by their friends in social media. These findings indicate that visual literacy skills need to be developed in line with the expectations of the creative industries.

An understanding of the needs of industry, especially in the creation of high-quality artefacts was indicated as an area for development. The participants ability using traditional digital software, specifically those required in industry, was also very weak. However, as technology develops the ability to use these software applications may well decrease. The participants tended to use online media, often in the form of user-generated content. Consequently, they might not have been exposed to, or take notice of, print media to the same degree that older generations have. Their experience with traditional media forms, such as printed advertising products, may therefore be limited. The development of skills that advance their ability to 'see' using theories and principles such as Gestalt, is indicated (Wertheimer, 1938). So too, is the development of semiotic skills to understand the nuances of visual communication (Arnheim, 1974; Eco, 1976; de Saussure, 1959).

There was also a strong indication that an understanding of legal and ethical constraints, particularly in the use and re-use of online media, was required (NUS, 2016; Palfrey, Gasser, Simun, & Barnes, 2009, Towse, 2016).

#### *5.4.3.b. Implications*

The students' propensity to turn to the Internet, combined with their 'need for speed', may provide them with some desirable skills due to developments within the creative industries. However, the implications to their overall learning are a cause for concern. Images influenced by the mobile apps have already started to appear in students' work, as well as in commercial artefacts. Social media built-in app filters lighten images, as demonstrated by the students in FG4, where it was indicated that they would over-expose the image. This use of mobile phone apps in the production of images for social media may have had an effect on how students produce photographs for other purposes, which may, in our eyes, appear to be over-exposed.

Tilted angled shots, similar to those used to take ‘selfies’, have also been seen in the work of students. Furthermore, Instagram displays images on its site in a square format, rather than in the traditional landscape or portrait aspect ratio (Fig. 13). The use of the square format has also been seen in the work of students.

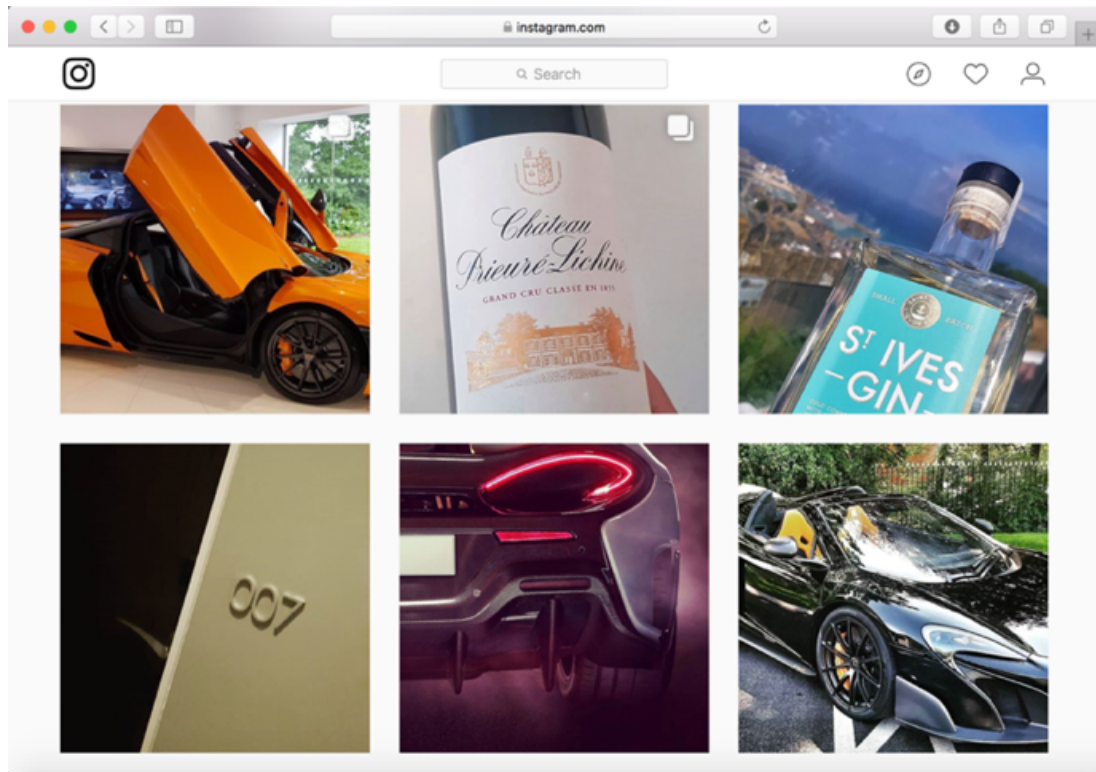


Fig. 13 – Example Instagram page

This desire for immediacy and speed of production, exhibited by the participants, is likely to intensify in the future as technology develops. Snapchat has created new technology in camera glasses, known as Spectacles (Spectacles, 2018). The use of these glasses means that the wearer is always ready to take a picture at any time, which Spectacles claim “capture your world, just the way you see it. Just press then play” (Spectacles, 2018). The use of Spectacles eliminates the need to have a camera, or mobile phone, on hand to take pictures.

The circular format used with Spectacles (Fig. 14) might mean another change to how images are perceived and produced in the future.

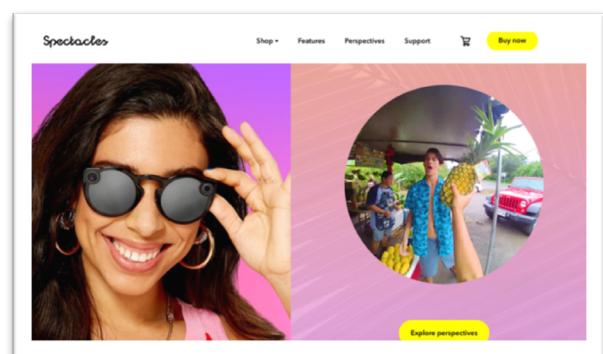


Fig. 14 – Spectacles Home Page



In the same way that Google encourages users to keep on the move, the rise in online social network sites such as Facebook and Twitter forces users to have to keep checking the sites, so that they do not miss out on the constant stream of information and posts from ‘friends’ (Lai & Hong, 2015). The immediacy of these posts, and the constant need to be permanently connected, is a feature of the post-Millennial (boyd, 2015). This was reflected in the participants’ need for speed. This immediacy for engagement is no more evident than with the mobile app Snapchat, where messages only remain visible for as long as they have not been viewed by your friend(s). The messages appear on screen for a couple of seconds, are viewed, and then disappear within seconds - unless the messages are part of a ‘story’<sup>20</sup>, in which case they remain viewable for 24 hours (Snapchat, 2018). Snapchat predicates speed over quality and targets the younger generation: “Snapchat opens right to the camera screen – so you can send friends a quick photo or video of what’s going on, without having to type out a whole message.” (Snapchat, 2018). It was noted, in FG4, that Student B was captivated by the Snapchat app to the exclusion of their immediate surroundings.

### 5.5. Chapter summary

The digital age has brought many benefits to the world, but it has also brought many unanticipated and unexpected consequences that especially affect post-Millennials. These young people have no knowledge of a world without digital technology. They have access to the latest mobile devices, on which their lives might seem increasingly to depend. These mobile devices are increasingly ‘smart’, meaning that there is less reliance on more traditional digital technology such as desktop computers and laptops. Many post-Millennials use smart mobile devices to keep in touch with friends and to access the Internet (OECD, 2015). However, this change in technology usage is reflected in a change in the digital skills that new undergraduates display. Compared with earlier cohorts, post-Millennials seem less able to use older, traditional digital technologies. That skills gap is the focus of this study.

The confidence that the students in these focus groups had in their ability to problem solve, mainly through the use of the Internet, correlates with previous studies Oblinger & Oblinger (2005), Prensky (2001) and Rainie, Brenner & Purcell (2012), who found that young people were highly proficient digital communicators. However, the visual and media production skills found in the participants in these focus groups were weak.

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<sup>20</sup> A ‘story’ in social media is a collection of images or videos that the user can invite their friends to view.



In examining the key debates around digital technology and the post-Millennial, it has been found that most young people are no more competent in their ability to use digital technologies than anyone else. In contrast to the concept of the digital native, the post-Millennials examined for this research appeared to be less able than previous cohorts of students, with the use of traditional digital technologies such as computers. Their propensity to use the Internet, which appeared to be to speed up the production process, has a number of implications on teaching and learning in the 21<sup>st</sup> century. In the first instance, speed at the expense of quality does not demonstrate good practice. The students' inclination to use their own visual judgment, or the opinion of friends, rather than to use visual design theories and practices, could lead to the production of poorer quality visual artefacts, as well as miscommunication of messages. This has clear implications for the creative industry of advertising.

The key skills – *rules*- identified for the production of effective visual communication artefacts were defined as an ability to understand subtle meanings derived from images, and the capability to encode messages into images. These required an in-depth understanding of visual communication practices such as Gestalt principles, and semiotics. However, these skills were lacking in the participants in FG1 to FG3. Furthermore, they saw little need to learn how to produce visual artefacts using these rules.

The digital technologies used by post-Millennials were mainly mobile technologies and the Internet. The software that the students had used previously was identified as Microsoft Word, Publisher, Photoshop and PowerPoint. Microsoft Word and PowerPoint had been used the most by all of the students.

The transferrable visual communication skills that post-Millennials already had were limited. They used skills that relied only on their own opinion, or those of their friends. There was little indication that any of them were able to recognise and therefore use effective visual communication skills in the production of their visual artefacts. However, it was noted that they were able to use creative problem-solving skills to address their lack of knowledge, such as using the Internet for help, as well as using software in an innovative way to achieve their goals.

The skills that were indicated as still needing to be developed were the ability to understand how meaning is made through the use of images. Specifically, positioning, clarity and quality of image, and understanding of the nuances of visual design were noted as needing to be

developed in these students. The ability to use industry-standard software to produce images was also identified as needing to be developed.

#### 5.5.1. Summary of implications

The developments of software and mobile apps for image production that have reduced functionality are being increasingly used by young people. Young people are especially vulnerable to the opinions of their peers. They are also more likely to socialise with them online through social media. Social media facilitates the easy production and dissemination of images, which are then judged by their communities. These communities often consist of their friends who usually stem from a similar background or culture. Consequently, the production and re-production of images is guided by the online community's views. As Martinez said, "It is a different world, one where the universally acclaimed expert or editor has been replaced by internet-enabled rumor and hearsay arbitrated only by algorithms" (2018). This can mean that young people may struggle to develop more refined visual communication skills.

Furthermore, images that have been appropriated through the Internet are often subject to copyright and intellectual property law. The use of these appropriated images can have legal implications.

## Chapter 6. Conclusion

### 6.1. Introduction

This chapter presents the conclusions drawn from this research in a summary of the findings. Claims for contributions to knowledge and practice are then set out, followed by suggestions of where future research is indicated.

#### 6.1.1. The problem

The focus of this research is to understand the future educational needs of post-Millennial students of advertising. The work was undertaken through an examination of four groups of young people to assess how, and what, they were learning about visual communication skills through their use of widely available digital media technologies.

#### 6.1.2. Secondary research

In the first instance, a literature review was conducted. Literature that had examined the digital skills of young people revealed that although young people have good access to digital technologies, they tend to use them in a cursory manner, for social purposes, and to access the Internet.

A review of literature on the development of visual literacy found that it is a learned skill. The ability to communicate well through images is reliant on the ability of the producer to be able to encode the image with visual cues. These cues, such as signs and symbols, and the specific positioning and placement of those elements, are embedded into an image by its creator to aid the decoding process. Therefore, to prevent misunderstanding from occurring in professional visual artefacts, visual literacy skills need to be explicitly taught to visual communication students.

An examination of learning theory found that young people require a mixture of pedagogical and andragogical teaching methods to be used to aid their learning. Their motivation in pursuing a university course may indicate a pedagogical method is required. However, their approach to learning indicated that an andragogical method might be more suited to them. It was found that people learn best from their experiences when they are able to reflect on them, and subsequently apply what they have learned from those experiences in an entirely new context (Kolb, 2015). However, the positive reinforcement of bad practices, such as when a friend 'likes' a poorly produced picture that has been posted online, can also affect behaviour and influence learning (Skinner, 1953).

### 6.1.3. Primary research

Four groups of students were investigated using qualitative methods. The focus groups are described, along with the underlying rationale for the selection of the participants, as well as the instruments used to collect and analyse the data. The data are examined and coded to identify the themes that frequently occurred. The use of a CHAT framework, to search for any potential deviances between the expectations of new undergraduates and HE educators, is explained and set in the context of this study. The *instruments, division of labour, rules and community* that form the CHAT framework are aligned with the current working practices of the students. Any deviances from traditional working practices are noted, and considered through an in-depth analysis of the data generated from each of the groups. The research findings are then discussed in relation to the wider literature, thus contextualising the findings into the wider debate on the 'digital native'.

## 6.2. Summary of findings

### 6.2.1. Research objective 1

*To examine the key debates around digital technology and the post-Millennial learner.*

The research found that:

- In contrast to the view held by Prensky (2001), and Oblinger and Oblinger (2005), the participants appeared to be less able, than previous cohorts, in their use of traditional digital technology such as desktop computers.
- The students used the Internet to download images and text.
- They seemed unconcerned about copyright and intellectual property laws.
- They used the Internet in preference to asking the university staff for help. Their predominant trait was a "need for speed".
- They preferred to use mobile technology and apps to take and filter images, which they uploaded to the Internet for use on social media websites.

### 6.2.2. Research objective 2

*To identify the key skills needed to produce effective visual communication artefacts for commercial use.*

The research found that:

- The key skill identified for the production of effective visual materials was an ability to understand embedded meaning, based on layout, semiotics and Gestalt principles.

- The students appeared to have weaker visual literacy skills than previous cohorts. They based their designs on their own visual judgment, rather than on any specific design rules.

### 6.2.3. Research objective 3

*To identify, through a study of new learners of visual communication:*

*a) What digital technologies they have previously used to develop visual artefacts.*

The research found that:

- Although most of the participants claimed to have used software such as Photoshop before entering HE, the majority had used it fewer than ten times.
- Their selection of which software to use to create the task artefact was based on their previous use of it, rather than it being the best software for the task.
- The participants tended to use all of the software at a rather superficial level.
- Despite having only used the software a few times previously, they exhibited high confidence in their ability to use it.

*b) What transferrable skills they currently possess.*

The research found that:

- The main skill identified was their ability to use the Internet to quickly source what they needed. This included learning materials such as YouTube videos to help them to learn how to do something. However, they tended to select the sources quickly with little thought on whether it was the best resource to use.
- All of the participants were able to search online and find materials to use in their tasks. However, there was little discrimination in the selection of the elements, which appeared to be selected on a first-come-first-used basis.
- The participants were able to procure, collate and re-assemble existing online media.

*c) Which skills still need to be developed to prepare them for a career in visually-based creative industries?*

The research found that:

- The ability to produce effective corporate visual communication artefacts was very weak in the young people investigated for this research. Therefore, specific skills in visual literacy need to be developed.

- The participants all downloaded and used images that they sourced online, believing that their use of these images was 'fair'. Thus, they appeared to disregard current copyright and intellectual property laws. Therefore, current legislation around the use and re-use of images and online media need to be explicitly taught to students.
- The ability of the participants to use professional standard software and traditional digital technology was weak. Therefore, digital production skills using industry-standard software, need to be developed.

### 6.3. Synthesis of the findings in relation to the CHAT framework

#### 6.3.1. The *Subject* and activity system

The starting point for this research was found in the changes that had been perceived in recent cohorts of undergraduates entering visual-communication based subjects – the *subject* of this investigation. Young, post-Millennial, students appeared to be less able, than previous cohorts, to produce visual artefacts for advertising. Using the CHAT framework, the research findings were synthesised to investigate the CHAT activity system within which the participants and their lecturer were working. It was found that the students and the lecturer were actually working in two different activity systems. While lecturer was operating within the community of HE, the students appeared to be more comfortable within the community of the wider world via the Internet.

#### 6.3.2. The *Object*

The lecturer's *object* for the given task was an introduction to professional skills development. For the lecturer that *object* was the same as in previous years – as defined by the unchanged learning outcomes for the module. The underlying pedagogy and setting had also remained the same. However, the research found that the participating students' *object* appeared to be different from that of the lecturer. This dissonance was evidenced in key areas that affected the perception of the *object* - the production of a visual artefact, which appeared to be different to that of the lecturer. The primary concern for the surveyed students was speed of production, rather than quality of outcome.

#### 6.3.3. The *Community*

The greatest dissonance was found in the *community* area of the CHAT activity system. The research identified four *communities* operating within the activity systems: HE classroom, industry, peers, and the Internet. A complete reversal of the relative importance of those *communities* to the students was strongly identified. Traditionally, students have operated

in the HE classroom *community*. They have also been influenced by the *community* of industry; the *community* of their peers; and to a degree the *community* of the Internet. By contrast, for the subjects of this research, their *communities* of influence had completely reversed. They had become a 'flipped learner' (Fig. 15). For them, the Internet appeared to be the most important *community*, followed by the *community* of their peers. Their perceptions of the needs of the *community* of industry were weak. The HE classroom appeared to be the *community* of least importance to them.

The implication of this finding, for higher education, is worthy of reflection. The *community* of HE provides learning experiences for students to facilitate the development of their understanding of a topic, through the provision of a specialised learning environment. The hierarchy in the HE *community* is led by the subject expert – the lecturer – who passes on their knowledge to the student. The research found that the student was operating in a different *community* from the lecturer – a *community* facilitated by the Internet. The online *community* of experts is not necessarily a complete or accurate source of specialist subject expertise. This deviance found in the *communities* affected who the students perceived as the more knowledgeable expert. For these students, the Internet not the HE classroom, was the source of subject expertise.

#### 6.3.4. The Rules

Another major theme that emerged from the research was the participants' drive for speed of execution of the task. This speed was at the expense of producing a high-quality artefact. Their need for speed was predicated on a perceived *rule* that industry requires fast delivery of outcomes. However, this approached disregarded the professional practice *rule* that industry also requires high-quality artefacts. The students demonstrated little understanding or consideration of a further professional practice *rule* – the legal obligation to respect intellectual property rights. In creating their artefacts, students preferred to use their own visual judgment, rather than conforming to the *rules* of visual communication theory and practice.

#### 6.3.5. The Division of Labour

The visual artefacts were produced through a *division of labour*. In both cases the labour was shared between the students, technology and peers. However, the CHAT framework clearly identified a change in how the labour was now divided. In earlier cohorts, students had shared the production of the tasks using the resources of HE staff. By contrast, the research subjects made far greater use of the Internet than they did of HE lecturers and technicians.

# The Flipped Learner

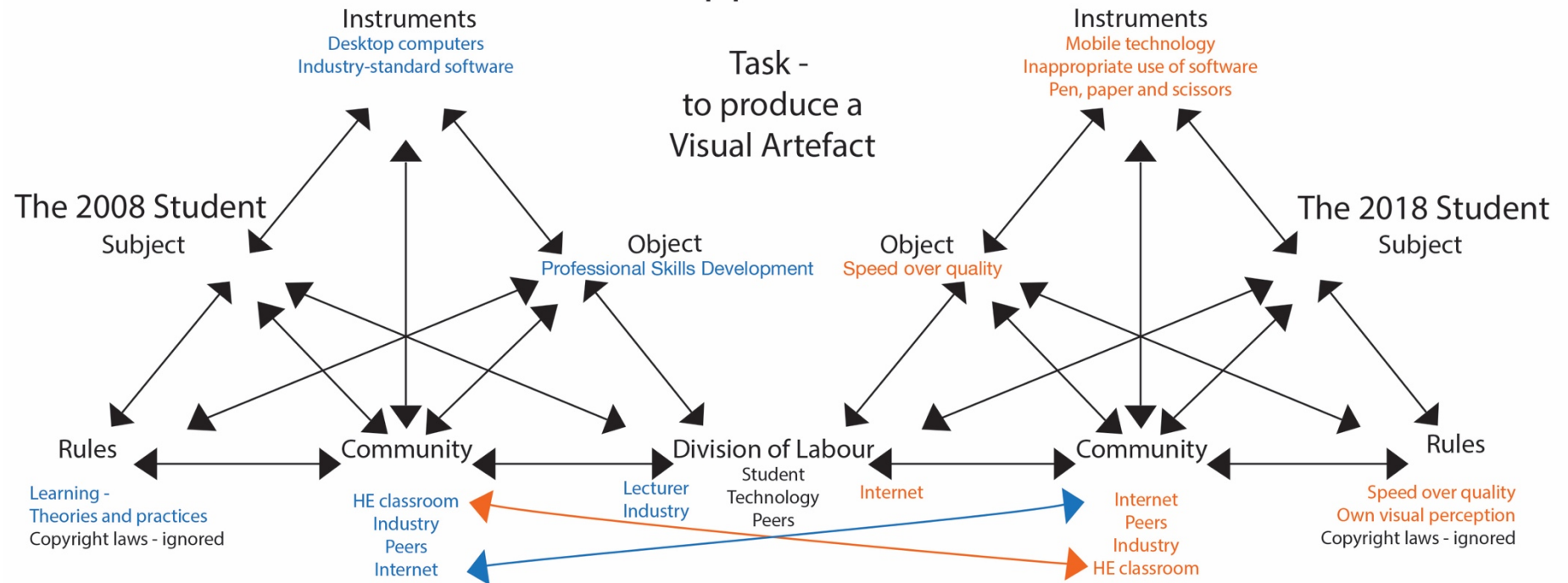


Fig. 15 – The Flipped Learner



#### 6.3.6. The *Instruments*

The framework also identified a striking deviance in the *instruments* used to produce visual artefacts. Earlier cohorts used desktop computers and industry-standard software. The surveyed students demonstrated far less familiarity with those traditional digital *instruments*. Rather, they were much more comfortable using mobile phones, and less appropriate software with which they were more familiar. This approach extended to the use of inappropriate software with poor quality results, or even non-completion of the task. In one group, participants reverted to the use of pen, paper, scissors and glue to create an artefact rather than use digital technology.

#### 6.4. Contributions to knowledge and practice

The contributions to knowledge and practice that can be claimed by this research fall under two headings:

- Development of a new understanding of the post-Millennial learner
- Addressing known gaps in the literature
- Recommendations for changed educational practice

##### 6.4.1. Development of a new understanding of the post-Millennial learner

The research's first contribution to knowledge lies in the development of a new understanding of post-Millennial student learning. Using the CHAT framework, substantial and significant deviances were found within the activity system of HE advertising programme delivery. The most fundamental change was in the divergence of the students' *object* from that of HE. This particular deviance was set within the context of another change, as exhibited in the roles of the *communities* within the activity system. Further deviances were clearly indicated in the *rules* and *instruments* employed within the system. While this investigation took place within a discrete programme area, the findings illustrate a situation that might well be discovered in other higher education settings.

The participants' in this research demonstrated a high-degree of self-learning, as exhibited in their use of the Internet to find answers to problems that they encountered. This is consistent with an andragogical approach to learning, as adults tend to seek out help from people other than teachers to help them to learn (Knowles, 1980). However, using a completely andragogical teaching method does not consider their personal motivations for HE education, which is often based on external pressures exerted by society and parents (Mezirow, 2000). Their motivation to learn, combined with their learning preferences,

suggests that a mixed approach to learning is required. This approach would combine some andragogical methods, such as building their confidence in the use of industry-standard software by enabling them to share their experiences and knowledge, while also supporting them in their learning using pedagogical methods. The role of experiential learning might offer a solution to this issue, through the development of problem-solving learning opportunities.

#### 6.4.2. Addressing known gaps in the literature

The literature review did not reveal any substantive investigations into how the new wave of digitally savvy users, who have never known a world without the Internet, use digital and online resources to learn visual design skills. This research has addressed that gap in knowledge through an investigation of how post-Millennials use digital technology to produce visual artefacts.

The literature review identified that young people were not particularly proficient in visual literacy. Brumberger (2011) suggested that a more hands-on study was needed to examine the visual communication production practices of young people. This research found that the visual communication skills of the post-Millennial learner appear to have weakened, when compared with previous cohorts. The findings suggest that young people's propensity to use mobile app technology might have an impact on the subsequent development of their visual literacy.

Tapscott (2009) identified a 'need for speed' in young people, but did not believe that it was necessarily bad for them as they learn better from doing. This research found that students were indeed driven by a perceived need to expedite the task. However, the students' need for speed reduced their opportunities for learning the theories and principles of visual communication. In many cases, the students used software and technology with which they were more familiar, to complete the task quickly, rather than spend the time necessary to learn more suitable industry-standard software and techniques.

Other contributions to the literature are made in respect of findings related to intellectual property rights (Palfrey et al., 2009); and also, in respect of the superficial use of digital technology (Lai & Hong, 2015).

#### 6.4.3. Recommendations to changes in practice

This research identified that there are increasingly wider gaps in post-Millennial students' understanding of the basic rules for the production of visual communication artefacts used

for professional purposes. These rules include: visual communication theories and principles; practical production skills – including the production of high-quality artefacts; and adherence to intellectual property law.

Knowledge of visual communication theories and practices, to encode and decode images, is essential for advertising students, so that they can understand how meaning is made and communicated through images. These skills have traditionally been taught through the development of practical production skills, using industry-standard software such as Adobe Creative Suite. However, post-Millennial students have been found to be less adept at using such traditional digital technologies. The research identified further gaps in skills and knowledge that also warrant consideration. For example, the students' need for speed, to the detriment of quality, clearly exhibited a lack of knowledge of professional practice. So, too, did their disregard for intellectual property law. However, it found that some of the skills currently used by the participants could be used to help them to develop skills essential to visual-based communications industries.

A number of strategies may be considered to help foster the learning of the essential skills and knowledge required by students of advertising. Their 'flipped learner' approach infers that they might prefer the learning environment of the Internet where they can take some responsibility for their own learning. Andragogical strategies, such as online learning, enable the learner to develop skills that draw on their past experiences and their need for self-directed learning. Some 'lite' versions of design and production software, for example, Wix, Adobe Spark, or Promo could be used to facilitate the learning of design principles. These applications, which are available via the Internet, already have the basic design principles embedded into their programmes: layout, suitable typefaces, and colours, for example. Many such products even have pre-selected images that can be used free of copyright. These applications use the rules and principles of effective visual communication design, although they are not always obvious to the user. These lighter versions of the full software programmes could be used initially to satisfy the 'need for speed' as exhibited by the participants of this research. Furthermore, their use will enable the introduction of design principles through the mediation of their preferred learning *community*.

However, the main issue with the use of these programmes lies in their restrictions. There are a limited number of ways in which the user is able to manipulate their designs. They are restricted to layout, use of type, and positioning of text, all of which limit the creativity of the user. Furthermore, while the people who currently produce these apps have knowledge

of design, those that use them might well not. This has implications for the future of designs, which will be produced within the restrictions of the software. Another consideration lies with creative industries of the future. It will be increasingly possible for anyone to create advertising and marketing materials that, on the surface, conform to visually acceptable design rules. However, the use of ubiquitous, but limited-functionality software, could also lead to the homogenisation of design artefacts, stifling the creativity that is a distinctive feature of the advertising and marketing industries.

Nonetheless, these 'lite' versions of design production software might provide a useful way for the educator to introduce visual communication theory and practice. Their reduced functionality might be more easily learned, while, at the same time, better facilitating post-Millennial learners' 'need for speed'. This approach follows Vygotsky's (1978) theory of the Zone of Proximal Development. This learning theory meets the students at their existing level, and help them progress to the next level of knowledge and understanding.

Other teaching strategies might also be used. Drawing on the findings of this research, it was clear that participants past experiences, circumscribed their use of technology (*instruments*) to ones with which they were already familiar. This technology was mainly mobile and Internet based. The development of their ability to critique images could be facilitated through the use of these technologies. Allowing the students to use their own photographs, which have been taken using the technologies that they are used to, could be used in regular peer-review activities. Drawing on techniques used in social media, images could be 'liked' and short reviews given in sessions to help to develop their critical eye. Industry-standard software can then be introduced once they have demonstrated an understanding of design principles.

However, the use of social and other online media is not suggested as a panacea to aid all learning. Possibly, one of the most significant issues facing young people today, which was also indicated by the findings of this research, is to be found in their 'need for speed'. There is a danger of assuming that because young people demand information quickly, that they are able also to process that information quickly too. The findings of this research suggest the opposite. Expediting the tasks left little room for deep-learning. Therefore, the 'flipped learner' approach might need redressing. The participants' need to complete the tasks quickly meant that they did not develop the essential skills necessary to demonstrate a good understanding of visual communication theories and principles. Therefore, it may be necessary to gradually decelerate students' desires for speed to facilitate their thinking and

processing of information. Many of the participants used the word 'play' when they were discussing how they went about learning how to create the artefacts. Giving undergraduates the time to 'play' with the software and with image production, may facilitate their deeper understanding of design principles. This follows Vygotsky's (1978) belief that play helps with the transition from one level of reality to another, i.e. from 'play reality' to 'serious reality'. A second phase of this research in the form of expansive transformation is therefore suggested.

Other considerations that will need to be addressed lie in the understanding of copyright and intellectual property laws. The literature revealed that specific emphasis needs to be placed on this topic within HE, with direct relationships made to individual subject areas (NUS, 2016). Students will need to demonstrate strict adherence to these laws, as well as knowledge of the restrictions placed on the use and re-use of media artefacts. However, as these laws are currently under review it will be necessary for lecturing staff to remain vigilant to any changes in requirements and incorporate them as and when required.

## 6.5. Indications for further research

The research findings highlighted several areas where further research may be suggested:

### 6.5.1. The effects of mobile phone use on the production of images

The students were found to be very comfortable with using mobile apps and image filters to create digital images. Feedback was sought from their peers about images that they posted online. It was indicated that this activity might be adversely affecting their visual communication and digital production skills. Further research is therefore suggested, to examine the effects of the use of mobile apps and filtered images, on post-Millennials' visual literacy skills.

### 6.5.2. Young people's perception of industry needs

The surveyed students held a strong belief that industry worked to tight deadlines and required speedy outcomes. While that might be the case, they did not demonstrate a concurrent view that industry might also require high-quality artefacts. No explanation was discovered for this unbalanced pair of views. Further investigation is recommended into how young people perceive the needs of the creative industries.

### 6.5.3. Young people's use of online resources for the acquisition of knowledge

The students' reluctance to ask lecturing staff for help was a surprising result as they had all recently left other educational establishments. Although they displayed confidence in some

aspects of the task production, the reluctance to ask for help might be indicative of an underlying and unacknowledged lack of confidence in their abilities. This potential dissonance indicates that further investigation is required. Furthermore, the changing nature of their learning styles, from pedagogy to andragogy, is also suggested by the findings of this research.

#### 6.5.4. The effects of the 'need for speed' on the ability to process and retain information

One of the most disturbing findings of this research was highlighted in the participants 'need for speed'. Why they felt the need to complete the task quickly was not uncovered. Their increasing dependence on the Internet was highlighted. Suggestions were made which reflected on how the architecture of the Internet may have been instrumental in encouraging the skim-reading of information at the expense of deep-learning. Further research would be recommended to investigate the effects of the Internet on young people's ability to process and retain information, as well as the effect that this constant 'need for speed' may have on the mental health of young people.

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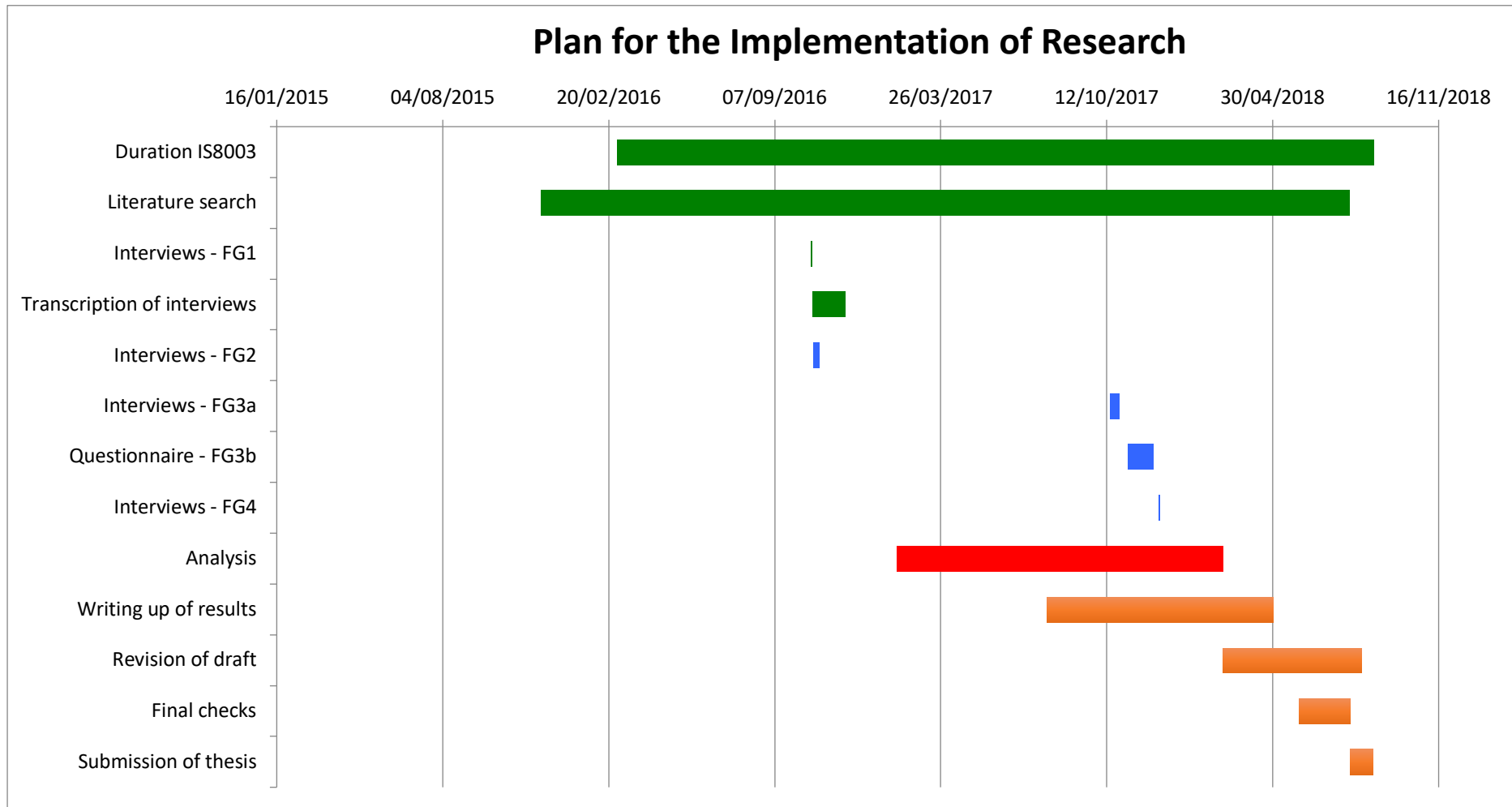
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## Appendices

## Appendix 1 – Timeline/Gantt Chart



## Appendix 2 – Questions used with Focus Groups - FG1 to FG3

### **Reflective Questions for Visual Communication exercises**

You were asked to design a board game/advert. These questions ask you to think about the process that you went through.

Please consider how you went about producing this artefact, including what equipment and software you used, and how you learned how to make the artefact.

#### **Equipment used**

What equipment did you use to create the artefact? E.g. digital camera, DSLR, mobile phone, lighting kit, our Mac labs, your own equipment etc. Please list all that apply.

How did you decide that this would be the best equipment for you to use for the task?

#### **Software used**

What software did you use to create the artefact?

Why did you use this particular software?

How did you go about producing the artefact? Consider the following:

How did you start off with the task?

What did you do first?

What made you decide that this was the best way for you to produce the artefact?

#### **Help received or requested**

Did you get any help with the production of the advert, or did you look at a video, or search on the Internet for any help? Consider the following:

Did anyone or anything help you with the task?

Did you look on the Internet for advice or a tutorial?

Did you ask someone else what to do? If so, who?

Did you watch what someone else was doing before attempting any specific part of the task?

Did you use a video or book to help you learn how to get the task done?



## **Design rules used**

What did you decide was the most important thing to consider in the reproduction of the advert? For example, colour, image, position of copy, layout, typeface used etc.

Why did you think that those specific design features were the most important ones to focus on?

What did you base your reasoning for this on?

Did you change the design in any way, if so what were the reasons for this change?

How did you go about selecting which typeface to use?

What did you think was the most important thing to take into consideration when you were taking your photograph and why?

How did you go about finding out how to do something, for example, importing an image, drawing a line, finding a suitable typeface etc.?

How did you decide where would be the best place to position the text/image?

What did you do to copy the example that you were given? For example, did you check the size or dimensions of the image?

Did you use the original image to overlay your own?

Did you separate out the individual pieces in the original artefact and attempt to copy them exactly, or did you make an approximation?

On a scale of 1-10 with 1 being not at all and 10 being an excellent copy, how near to the original do you think that your artefact is?

Please discuss what criteria you based this assessment on?

If you decided to change something can you explain what you changed and why?

This could be the use of a different typeface because you couldn't find the original, or the use of a different colour etc.

Based on what you have produced and having compared it with the original image what do you think is the most important thing to consider when producing an artefact for professional purposes?

### About you - Previous experience

Which of the following technologies do you own? Please underline and tick all that apply.  
(Double click on box to check)

Desktop computer Apple / Windows ☐

Laptop Apple / Windows ☐

Tablet iPad / Windows / Kindle ☐

Mobile phone iPhone / Android ☐

Which of the following technologies do you use on a daily basis? Please underline and tick all that apply. (Double click on box to check)

Desktop computer Apple / Windows ☐

Laptop Apple / Windows ☐

Tablet iPad / Windows / Kindle ☐

Mobile phone iPhone / Android ☐

Which of the following software have you used prior to attending university? Please indicate (highlight and cross out the numbers that don't apply) on a scale of 1 – 10, how proficient you would say you were in the use of the software with 1 having never used the software, to 10 being an expert user?

- |                  |   |   |   |   |   |   |   |   |   |    |
|------------------|---|---|---|---|---|---|---|---|---|----|
| a. Photoshop     | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| b. Illustrator   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| c. InDesign      | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| d. Dreamweaver   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| e. Adobe Premier | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| f. Paint         | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

### **Your own personal reflection**

How have your visual design skills changed since you produced this artefact?

What do you think your visual design strengths are, and why do you think this is?

## Appendix 3 – Previous Experiences Questionnaire – FG3b

Thank you for completing this questionnaire, which is investigating people's use of digital media software and their understanding of visual communication and design.

Please answer all of the questions.

1. In which year were you born?  Required

2. Where did you spend most of your childhood?

- ☐ UK and/or Western Europe
- ☐ Asia
- ☐ United States of America
- ☐ East Europe
- ☐ South America
- ☐ Africa
- ☐ Oceania

3. How old were you when you first got access to the Internet?

- ☐ Younger than 5
- ☐ Between 5-8
- ☐ Between 9-13
- ☐ Between 14-17
- ☐ Older than 18

3.a. What year was that?

Your answer should be no more than 4 characters long.



---

4. How old were you when you got your first computer?

- ☐ Younger than 5
- ☐ Between 5-8
- ☐ Between 8-13
- ☐ Between 14-18
- ☐ Older than 18

4.a. What type of computer was it?

4.a.i. If you selected Other, please specify:

4.b. What year was that?

- ☐ Other

5. Which of the following subjects have you previously studied? Please tick all that apply.

- ☐ Graphics
- ☐ Media Studies
- ☐ Film Studies
- ☐ Photography
- ☐ Web Design
- ☐ I have never studied a design based subject before
- ☐ Other

5.a. If you selected Other, please specify what **design-based** subject you have studied:

6. Please give an estimate of how much time you have spent on visual design skills development.

*N.B. if you studied a course at college you would usually have devoted around two hours a week to each subject, over a period of 39 weeks. Therefore, a one year Photography A' Level course would mean that you have spent approximately 78 hours, which is equivalent to two full-time weeks on the taught aspects of the course. This would be usually balanced between theory and practical skills development.*

- ☐ Less than 1 week, or 40 hours (equivalent to a one year part-time course)
- ☐ Between 1-2 weeks, or 40-80 hours (equivalent to a one year A' Level course)
- ☐ Between 2-3 weeks, or 80-120 hours (equivalent to a one year BTEC course)
- ☐ Between 3-4 weeks, or 120- 200 hours (equivalent to a two year A' Level course)
- ☐ More than 4 weeks, or 200 hours (equivalent to a diploma course)
- ☐ Not applicable

7. Which of the following software have you used? Please tick all that apply.

- ☐ Microsoft Word
- ☐ Microsoft PowerPoint
- ☐ [Microsoft Paint](#)
- ☐ Adobe Photoshop CC
- ☐ Photoshop Express Mobile App
- ☐ Snapseed Mobile App
- ☐ Pixlr Mobile App
- ☐ Flickr Mobile App
- ☐ Instagram Filters Mobile App
- ☐ Camera+ Mobile App
- ☐ Darkroom Mobile App
- ☐ Adobe Illustrator CC
- ☐ Adobe InDesign CC
- ☐ Microsoft Publisher
- ☐ Adobe Dreamweaver CC
- ☐ WordPress
- ☐ Other image editing software

7.a. If you selected Other, please specify:



8. Which software do you prefer to use for producing, editing or manipulating images?

- ☐ Microsoft Word
- ☐ Microsoft PowerPoint
- ☐ Microsoft Paint
- ☐ Adobe Photoshop CC
- ☐ Photoshop Express Mobile App
- ☐ Snapseed Mobile App
- ☐ Pixlr Mobile App
- ☐ Flickr Mobile App
- ☐ Instagram Filters Mobile App
- ☐ Camera+ Mobile App
- ☐ Darkroom Mobile App
- ☐ Adobe Illustrator CC
- ☐ Other image editing software
- ☐ Other

8.a. If you selected Other, please specify:

9. What type of device do you use most often for manipulating/editing images?

- ☐ Desktop computer
- ☐ Laptop
- ☐ Mobile phone
- ☐ Mobile tablet e.g. iPad

11. When completing a digital artefact, which of the following is most important to you?

- A. Completing it by the deadline.  
B. Completing it to a high, professional standard.

- ☐ A is most important  
☐ A is mainly the most important  
☐ B is mainly the most important  
☐ B is most important

10. Please rank your skill level in each of the following computer-based software.

Please don't select more than 1 answer(s) per row.

	Not used	Used once or twice	Used to create fewer than 5 projects	Used to create 5-10 projects	Used to create 10-20 projects	Used to create 20-50 projects	Used to create more than 50 projects
Adobe Photoshop	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adobe Illustrator	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adobe InDesign	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Microsoft Paint	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Microsoft Publisher	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Microsoft Word	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Adobe Dreamweaver	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
WordPress	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Microsoft PowerPoint	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please say whether you agree with each of the following sentences.

Please don't select more than 1 answer(s) per row.

	Often	Never
I have used images found on Google in work I have done for a small business (fewer than 20 employees).		
I have used images found on Google in work I have done for a large business (more than 20 employees)		
I have used images found on Google for my own work (including work for college/university).		
I have used images found on Google for personal use.		

Please answer the following questions.

Please don't select more than 1 answer(s) per row.

	Strongly Agree	Agree	Disagree	Strongly Disagree
Images found on Google are copyright free and can be used in professional work without crediting the original creator				
Images found on Google can be used for small businesses.				
Images found on Google can be used as long as no money is being made from their use.				
Images found on Google can be used in professional work only if written permission from the original owner to use it has been received.				
Images found on Google can be used as no one will find out anyway.				
Images found on Google can be used as long as they have been changed significantly from the original.				
Images found on Google can be used in professional work but only if the original creator is credited.				

14. When you 'like' an image on social media, what is it usually that you like? Please select which one would be your most important consideration.

- ☐ Composition
- ☐ Relevance to you
- ☐ How 'pretty' the image looks
- ☐ Subject matter that I agree with
- ☐ Clarity of the image
- ☐ Amusing caption
- ☐ It's funny
- ☐ It's cute
- ☐ Its meaning to my 'friend'

15. Which types of pictures are you most likely to 'like' on social media? Choose only your top five.

Please select no more than 5 answer(s).

- ☐ Celebrity pictures
- ☐ Cute animal pictures
- ☐ Amusing pictures
- ☐ Satirical images
- ☐ An image that makes me go "wow!"
- ☐ Pictures taken in a great location
- ☐ Picture promoting a cause I like, i.e. charity based, awareness raising etc.
- ☐ Pictures with alcohol or food in it
- ☐ Pictures with a funny caption
- ☐ Pictures of my friends looking good
- ☐ Pictures of my friends looking silly
- ☐ Pictures with me in them

16. Where do you mainly look for inspiration on how to create a good image?

- ☐ Books
- ☐ Professionals' work
- ☐ Friends' images
- ☐ Google images
- ☐ Well-known bloggers' images

17. How do you know that an image that you have created is good?

- ☐ Number of likes it receives on social media.
- ☐ How similar it is to professional images
- ☐ How well lit it is
- ☐ The elements of the image that I wanted to see are in focus
- ☐ The image has been composed well
- ☐ How it adheres to recognised design principles such as gestalt or the Golden Rectangle.

18. How important do you think it is to conform to design rules?

- ☐ Yes, definitely
- ☐ Sometimes
- ☐ Not important, it is good to break the rules
- ☐ What are design rules?

19. How important is it to always use a brand's logo as stated in their brand guidelines?

- ☐ Yes, you should always follow their brand's guidelines
- ☐ Sometimes it is necessary to change them to suit your design
- ☐ It is not important to follow their brand guidelines as they are only a guide and not absolute
- ☐ What are brand guidelines?

20. Which of the following statements do you agree with the most?

Please don't select more than 1 answer(s) per row.

	Strongly agree	Agree	Disagree	Strongly disagree
You can use a company's logo or product shot without their permission for your own work as it is already in the public domain.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
You should always ask permission to use a company's logo or photographs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
You can use a company's logo or product shot if it fits in with a campaign that you are doing for them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
You can use a company's logo or product shot if it fits in with a campaign that you are doing for them.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
You can use a company's logo or product shot if it fits in with a campaign that you are doing for another company who use their products.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
You can change a company's logo colours if the colours clash with your own designs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Thank you

## Appendix 4 – Participant Information Sheet and Consent Form

**Project title:** Learning how to see: How students use online resources to learn visual design skills

**Project aim:** The aim of this research is to investigate how young people, born between 1995 and 2000, use online learning resources to develop their visual design skills.

**Requirements of participants:** Participants will be asked a series of questions during a semi-structured interview about how they learned how to complete a new design task. It is anticipated that the interviews will last for approximately 30 minutes each. The interviews will be recorded and then trans-scripted for the purpose of the research.

Personal details will be reserved to the demographics of the individual participant such as age and previous experience and no other identifiable data will be collected. Access to the data will be limited to the researcher and the researcher's direct supervisors.

Participation in this research is completely voluntary and any participant who may wish to withdraw from the research can do so at any time by contacting the main researcher. Non-participation will not affect the rights of the individual in any way whatsoever. There are no anticipated risks to the participants of this research.

**Researcher's name:** Kate Sillitoe                      **Contact details:** [k.sillitoe@chester.ac.uk](mailto:k.sillitoe@chester.ac.uk)

**Supervisor's name:** Vish Maheshwari              **Contact details:** [v.Maheshwari@chester.ac.uk](mailto:v.Maheshwari@chester.ac.uk)

**Dean of academic Quality and Enhancement at the University of Chester:**

Graham White    **Contact details:** [g.white@chester.ac.uk](mailto:g.white@chester.ac.uk)

- I have read the Participant Information Sheet and the nature and purpose of the research project has been explained to me. I understand and agree to take part.
- I understand the purpose of the research project and my involvement in it.
- I understand that I may withdraw from the research project at any stage and that this will not affect my status now or in the future.
- I understand that while information gained during the study may be published, I will not be identified and my personal results will remain confidential.
- I understand that I will be audio/video recorded during the interview.
- I understand that data will be stored on the researcher's digital devices until the audio files have been transcribed at which point the transcripts will be stored on the researcher's personal computer. Access will be available only to the researcher and their supervisor(s).
- I understand that I may contact the researcher or supervisor if I require further information about the research, and that I may contact the Dean of Academic Quality and Enhancement at the University of Chester, if I wish to make a complaint relating to my involvement in the research.

**Signed:** (research participant)

**Print name:** (research participant) **Date:**



## Appendix 5 – Example of Brief – Advertising – FG2 & FG3

You need recreate the advert pictured below, as near to the original as you possibly can. Please reproduce it from scratch.

You are free to use whatever equipment or software you feel is most appropriate for this task.

Once you have completed your advert and are happy with it, you will then need to complete the reflective questionnaire.

Please insert your advert into the questionnaire where indicated and email it to me at [k.sillitoe@chester.ac.uk](mailto:k.sillitoe@chester.ac.uk).

Please note, for this task there is no right or wrong way to do it. I am interested in finding out how you would currently go about making an advert and need to assess where you are at the moment, so please give it your best shot.



## Appendix 6 – Example of Data Analysis

Interview	Theme	Comment	Reference No.	Page
7-10	Awareness of marketplace	Yes, derailing from the original task. We a supposed to be basing game off video game. Not supposed to be merging two together.	68	8
7-10	Branding	Supermario style background	6	1
4-6	Card games - paper based	powered up with ? indicates Interactivity?	2	1
7-10	Communication - email, One Drive	Used emails, Outlook and One Drive	12	1
1-3	Communication	working in a team and trying to communicate	37	6
7-10	Communication	Yes, if not comfortable won't be able to project your ideas properly	56	6
7-10	Communication	For us mainly making sure understood each other and all on same page in where we were in terms of design	57	6
7-10	Communication	it was a matter of understanding each other and if anyone had problem with particular thing then told each other	59	6
1-3	Communication - Face-2-face	The other way was to meet up in the library	17	3
1-3	Communication - Face-2-face	Both in library and sometimes in lectures if we had been given time	18	3
1-3	Communication - Face-2-face	40% face-to-face	20	3

1-3	Communication - Face-2-face	we arranged to meet up one time in the week	22	3
1-3	Communication - Face-2-face	shared a few ideas and additions to the game on Facebook but it was mostly face-to-face.	23	3
1-3	Communication - Face-2-face	made a group chat on Facebook. Only really used it to discuss when we were going to meet each other to speak about it face-to-face. So, ours was mostly discuss ideas face-to-face.	24	3
1-3	Communication - Face-2-face	Share similar face-to-face we were in the pod for 3 hours	27	4
7-10	Communication - Facebook	Facebook Messenger	17	2
7-10	Communication - Facebook	Set up Facebook first. Focussed on getting group together and getting our communication set up as when really thinking of the game was important to have idea of game but at same time thought no point in having game idea if can't talk to other team members first	44	5
4-6	Communication - internet - Facebook	Communication - Facebook	10	1
4-6	Communication - internet - Google drive	Communication online – via google docs - ease of use and accessibility	9	1
4-6	Communication - internet - Google drive	I thought 'what did I learn from that and what could I put into this board game' and I typed up the ideas on the Google drive.	32	4
4-6	Communication - internet - Google drive	Everyone did the same	34	4
7-10	Communication - SMS	Phones for primitive text messages	28	3
1-3	Communication - Social media	Private group adding each other to, and this was one of our main forms of communication	16	3

1-3	Communication - Social media	created a group chat	21	3
1-3	Communication - Social media	shared a few ideas and additions to the game on Facebook but it was mostly face-to-face.	23	3
1-3	Communication - Social media	made a group chat on Facebook. Only really used it to discuss when we were going to meet each other to speak about it face-to-face. So, ours was mostly discuss ideas face-to-face.	24	3
1-3	Communication - Social media	we started to add each other on Facebook we added each other into a group	15	3
4-6	Communication face-2-face	Discussed it verbally	23	3
4-6	Communication face-2-face	straight after we discussed it, we had a gap on the next Monday and decided that was going to be our meeting time. So, we went to the Library here and we booked one of the pods	28	4
4-6	Communication face-2-face	Straightaway after that lecture we went to the library and booked out one of the pods	30	4
4-6	Communication face-2-face	Writing down what else we could do	31	4
4-6	Computer	computer and smart screen tv – indicate familiarity with these platforms	4	1
4-6	Computer - Google	computer, and online research. Non-digital card games	1	1
4-6	Computer - Google	Google docs, drive	3	1
4-6	Computer - online	Game was downloaded to our computers but the game itself is on a server on the internet via multiplayer. Reason played online was so we could test how the game would work and then take those techniques, the games' ideas and put it on a board game to see how it would work. Take the game mechanics from online and put it into a physical version. Then we combined	11	2
4-6	Computer - Photoshop	a programme called Photoshop which is basically artistic software	5	1

4-6	Computer - Photoshop	played through the board game in Photoshop by dragging the icons around and using an online dice	6	1
4-6	Computer - Photoshop	used Photoshop to play test the game	7	1
7-10	Computer - photoshop	Board itself we used Photoshop. Google Chrome	15	2
7-10	Computer - printer	No printed off the board game and then put it on	4	1
7-10	Computer - Publisher	I did use Publisher but would not work in our computers. Kept getting errors. Publisher is good for business cards we could use to cheat and put back to back text but wouldn't print so had to use Word again which took longer	21	3
7-10	Computer - Word	Microsoft Word for creating the questions and event cards	16	2
1-3	Confidence	We obviously knew what font it was because we were familiar with the game and someone made it on Photoshop	53	7
1-3	Confidence	I think we did alright considering the two-week period we had. I think compared to other groups I think ours was more, when I said at the start we wanted it to be simplistic, I think we turned it into something we thought was simplistic but then it just turned into something a bit more complicated than we actually wanted it to be	55	8
1-3	Confidence	I would probably put it towards a 7	56	8
1-3	Confidence	Scale 8-9	57	8
1-3	Confidence	Scale 6-7, 7	58	8
7-10	Confidence	Had all skills needed to work with project	45	5
1-3	Confidence - Photoshop	7	74	9
1-3	Confidence - Photoshop	6	75	9
1-3	Confidence - Photoshop	8	76	9

4-6	Confidence – very high	9/10. It works, got good rules, functions	61	7
4-6	Confidence – very high	It could be marginally improved	62	7
4-6	Confidence – we used our knowledge	we used our knowledge	51	6
4-6	Confidence – we used our knowledge	we had all played them as a child so we had an idea of how board games worked	52	7
4-6	Confidence – we used our knowledge	I already knew how to make logos and stuff like that	54	7
7-10	Confusion	I was in the same group, we were trying to figure out how to take the digital game Mario Party and transfer that to a board game, because in essence it already is a board game and how it works you travel along spaces with the characters each taking it in turns rolling the dice as you would any traditional board game. However, in Mario Party as it is a digital game there are mini games which are allowed to be made/happen and you would use various controls, multiple complex rules behind the game whether that be knocking players out of a ring, collecting certain objects within the time constraints of mini game and obviously that was a challenge with board game as can't portray that onto physical setting and so conclusion came to was just have more conventional board game or card game style approach and conclusion was to have battle system to replace the mini games which two players would commence in battle, each draw a minion card, minion had certain stats and whichever minion beat the other minion that player they would win.	13	1
4-6	Copyright	then I used a really similar font	56	7
7-10	Copyright	Supermario style background	6	1
4-6	Copyright	I thought it would be a waste of time trying to create a new logo, especially when there is already one out there	59	7
7-10	Copyright	our team mate took images off internet Chrome and downsized them and edited out body to create a counter shape	29	3
7-10	Copyright - Google images	We printed off just using Windows Photoviewer	5	1

7-10	Copyright - Google images	Google Chrome	9	1
7-10	Copyright - Google images	got a picture of background and printed that off from Google Chrome, printed straight off	10	1
1-3	Copyright issues	Yes, we used 3 different images from that game and we also based our map around that game as well	10	2
1-3	Copyright issues	more of the same. Same technique really.	11	2
4-6	Copyright issues	The brief said a board or card game we thought we would combine both together to try and be a bit different and that's when we decided that Minecraft was game we would go with because we decided that we liked to play it	26	3
4-6	Copyright issues	Yes – touched on the same audience as the digital game so yes	60	7
7-10	Copyright issues	No just took off internet, and took out bits needed	31	3
4-6	Copyright issues - Google images	This logo was taken from Google Images.	55	7
1-3	Didn't ask more experienced and/or knowledgeable for help	No one in our group did that. We just did it all.	32	5
1-3	Didn't ask more experienced and/or knowledgeable for help	If getting images from internet counts – just searching within the group	35	5
1-3	Didn't look for an alternative solution	Did you try using anything new? Student collective response: – no not really	14	2
7-10	Ease of use	It is easier to try and position the different pieces on to board itself using Photoshop	27	3
4-6	Ease of use	The game is visual because it's a board game and Photoshop gives us a very visual representation of how we were developing the game so it is better to picture in your mind, the game if you can see it and also a big part of the game is it uses hexes. And I think the idea of having to draw all of these hexes on the paper would be difficult, and waste of paper. Doing on software and being able to copy rows was a good idea	12	2

4-6	Ease of use	using Photoshop because it is the easiest to use	18	2
4-6	Ease of use	used the Google Docs again to write down the rules on instructions on how to play the game	19	2
4-6	Ease of use	Yes, we tried finding games that are not like strategy because those could be easily turned into board games whereas something like fast-paced game like Rocker League could be turned into a board game	24	3
4-6	Ease of use	because you can do almost anything with it and then we looked at what people have done with it and the survival games, the mini game people have created, we thought that was the perfect game to turn into a card/board game.	27	3
4-6	Familiarity	using Photoshop because it is the easiest to use	18	2
4-6	Familiarity	because you can do almost anything with it and then we looked at what people have done with it and the survival games, the mini game people have created, we thought that was the perfect game to turn into a card/board game.	27	3
4-6	Familiarity	Not really. We all had experience with Rocket League so we knew how it worked. It is not exactly a complicated game and it is pretty well known between us how it works so we just went straight into converting that into board-like elements	29	4
4-6	Familiarity	give board game sense of familiarity to users	58	7
7-10	Familiarity	We had the game itself as well	2	1
7-10	Familiarity	Had all skills needed to work with project	45	5
7-10	Familiarity - Paint	Paint	7	1
7-10	Familiarity - Personal experience	most comfortable with it. What we grew up	32	4
7-10	Familiarity - Personal experience	Assigned roles of who wanted to do what, mutually agreed as to who would do what and which role everyone felt comfortable with	58	6
7-10	Familiarity - Photoshop	If you were to take a computer course from a younger age you have to learn Photoshop	33	4



7-10	Familiarity - Photoshop	You mentioned grew up with it. Used it in school? S: In college. But if take computer course, I was forced to use Photoshop and learned myself anyway.	34	4
7-10	Familiarity - users	The game mechanics. Making sure the mechanics of the board game, not necessarily completely matched up with idea of original game but fit in same style. For example, if TNT block in the actual game, since that normally causes character to die in the game, in the board game you would not exactly have it to do something good you would want it to relatively stay within what it does so a chance to cause something bad for character but at the same time some way to avoid it.	64	7
4-6	Familiarity and consideration of tools	Using over Word or Publisher, mainly because you get more control so being able to drag things around, have multiple layers, it's just a more powerful tool to use.	21	3
1-3	Familiarity with software	instinct, first thing we thought of	4	2
1-3	Familiarity with software	Because that is what we have used before and we familiar with it	5	2
1-3	Familiarity with software	Google is the only search engine I really use	6	2
1-3	Familiarity with software	PowerPoint is a bit more smoother with how we could present the rules where Word was, it looked like a sheet, I felt it would be a bit more messier than PowerPoint where we could separate each section of the rules and how to play by slides instead of having bullet points for this and possibly again the rule list all messed up	7	2
1-3	Familiarity with software	Stuff used before so we were familiar with it, so we knew how to use it anyway easy to use for us.	12	2
1-3	Familiarity with software	More the same – being part of how I work for years I usually just work on a computer and use word for my documents.	13	2
1-3	Familiarity with software	We asked about experience.	28	4
1-3	Familiarity with software	I think with the board game the first thing, the most important thing to make sure was simple and easy to play really because if we ended up making something that was really, you take a long time to understand rules and finish game, no one would want to actually play that board game you would want something read rules once and then pick up again whenever.	36	6

4-6	Familiarity with software - Photoshop	Photoshop has more tools rather than using Paint for example	13	2
4-6	Familiarity with software - Photoshop	Used Photoshop right the way through. Jan wrote down rules in Word and then copied and pasted into Photoshop to make a nice little page	14	2
4-6	Familiarity with software - Photoshop	we decided we had all used Photoshop before in the past so we thought we would use what we were comfortable with already	22	3
4-6	Familiarity with software, alternatives not considered	Because for what we needed, I am comfortable with Photoshop personally. Don't have any skills in Illustrator so I wouldn't have been able to product what we needed.	20	3
7-10	Familiarity- personal experience	I was in the same group, we were trying to figure out how to take the digital game Mario Party and transfer that to a board game, because in essence it already is a board game and how it works you travel along spaces with the characters each taking it in turns rolling the dice as you would any traditional board game. However, in Mario Party as it is a digital game there are mini games which are allowed to be made/happen and you would use various controls, multiple complex rules behind the game whether that be knocking players out of a ring, collecting certain objects within the time constraints of mini game and obviously that was a challenge with board game as can't portray that onto physical setting and so conclusion came to was just have more conventional board game or card game style approach and conclusion was to have battle system to replace the mini games which two players would commence in battle, each draw a minion card, minion had certain stats and whichever minion beat the other minion that player they would win.	14	2
7-10	Familiarity - Photoshop	All had better skills in Photoshop	25	3
4-6	Google docs	used the Google Docs again to write down the rules on instructions on how to play the game	19	2
1-3	Google image	If getting images from internet counts – just searching within the group	35	5
1-3	Google images	we used images from the internet for reference	1	1
1-3	Google images	Google	2	1
1-3	Google images	we used Google images	3	1

1-3	Google images	basing on off Google images	29	4
1-3	Google images	We took it from an image, cropped in on Photoshop	51	7
1-3	Google images	sharpened up on Photoshop	30	4
1-3	Google images	Good but after zoomed in cleaning up pixels	31	5
4-6	Help - peers	we asked those who were more competent for help and say, what tool did you use in Photoshop to do this with	37	5
4-6	Help - peers	Asked the more experienced people in our group	53	7
4-6	Help - peers	member of group he knew more about Photoshop than any of us and he taught me how to download a font from the internet in a font folder.	57	7
7-10	Help - wouldn't ask	Didn't really want to ask. Thought I am a computer scientist supposedly	54	6
7-10	Help - wouldn't ask	Did frustrate me but just wanted to learn myself	55	6
4-6	Interactivity	used the Google Docs again to write down the rules on instructions on how to play the game	19	2
7-10	Internet – Google Chrome	We used Google Chrome first off to research the game	1	1
7-10	Internet – Google Chrome	Used Google Chrome because it is better than Internet Explorer. It's a fact.	23	3
1-3	Internet for research	I think we did use the internet just to research rules like what we had originally in mind	33	5
1-3	Internet for research	If getting images from internet counts – just searching within the group	35	5
1-3	Internet for research	The only assistance we had was in the early stage we were looking for designs we just went on the internet	34	5
7-10	Knowledge	The iconic pipe	8	1
4-6	Lack of knowledge	Yes. Find it hard to explain.	40	5

4-6	Lack of knowledge	Not really sure to be honest.	48	6
7-10	Lack of knowledge	we couldn't figure out how to make card factor backs so I could write the text on back of cards. So, we had to print out and hand write it on the back. We put tape together for the board game which didn't go so well and used scissors to cut out spare pieces. We squished his face and a bit of his eye is missing.	20	2
7-10	Lack of knowledge	I had an idea of what we were doing because what I was thinking we could have done was put entire image or the desired size we were going to have and split into 4 pieces and save each as separate images and try and print all out that way. It kind of worked	49	5
7-10	Lack of knowledge	Did you think of asking anybody? S: Asked our group. K: Out of the group like a lecturer? S: No just our team	52	6
7-10	Lack of knowledge	Just brainstormed between us. Working it out. Just yesterday in the library in our own campus	53	6
7-10	Lack of knowledge	On Word or Publisher and Paint it's difficult to place on top of each other without more work to it	26	3
7-10	Lack of knowledge	It would be too small to print our board game on A4 piece of paper. Figured out how to put on 4 pieces. Didn't know how to do it to make same size so bits were not missing. I asked you, you didn't know so we stretched things out and hoped for the best	48	5
7-10	Lack of knowledge - Photoshop	Photoshop would have taken too long. We only used it to add circles for the spaces so we didn't really need anything to advanced	22	3
7-10	Lack of knowledge - Photoshop	our team mate took images off internet Chrome and downsized them and edited out body to create a counter shape	29	3
7-10	Lack of knowledge - Photoshop	Yes, can use Photoshop or Illustrator depending on what type of image, like bit metal vector, think he used vector probably to make more detailed and less pixelated	30	3
7-10	Lack of knowledge - Photoshop	Had a couple of tutorial sessions shown a few basic tools of Photoshop which would get us what we need to do on college course because we needed it to make posters or text images that you don't need expertise for, just a couple of tools of size and stuff. Layers and to improve quality of stuff and that	38	4
7-10	Lack of knowledge - Photoshop	I am the only person who didn't use Photoshop? I did Engineering.	39	4

7-10	Lack of knowledge - problem solving	Only problem is problem solving	46	5
7-10	Lack of knowledge - problem solving	Comes in the thinking stage of what game mechanics are similar to board game mechanics and from there it sort of develops from now think of things that are similar and what would be easiest to transfer as opposed to pick this game and make it into board game, the thought process is more along lines of what can we make into a board game and how easy will it be. Practical	47	5
7-10	Lack of knowledge - Publisher	I did use Publisher but would not work in our computers. Kept getting errors. Publisher is good for business cards we could use to cheat and put back to back text but wouldn't print so had to use Word again which took longer	21	3
7-10	Lack of knowledge - Publisher	Yes, because couldn't print from Publisher or actual image files	50	5
7-10	Lack of knowledge - Word	Basic word processor and allows you to share with One Drive because all of Microsoft Teachers have incorporated Microsoft Outlook and University has a shared One Drive which is easy to share and look up students within the same network and share with them so all the information could be shared easily and successful	24	3
7-10	Lack of knowledge - Word	Word margins couldn't get it on there. Had to figure out how to make margins smaller, got as small as could, guess when printing out, it did	51	5
7-10	Lack of understanding	The iconic pipe	8	1
1-3	Long distance input - digitally		25	4
1-3	Long distance input - digitally		26	4
7-10	Market led design	At end of day client paying to have product made	67	8
1-3	Mobile	Tablet use -no	65	8
1-3	Mobile	Tablet use -no	66	8

1-3	Mobile	Apple - iPhone	67	8
1-3	Mobile	Android	68	8
1-3	Mobile	Android	69	9
4-6	No help asked for or received	We had the lecture in the middle of the two weeks with Ralph and he said he would go round and talk to everybody but we didn't really get any help from him	36	4
4-6	Personal experience	Yes, so we had a fundamental way that we planned ahead of play testing it then got the refined rules and the technical details of how it was going to be played	8	1
4-6	Personal experience	We all just thought of games we had played before.	25	3
4-6	Personal experience	Not really, we pretty much knew from personal experience what to do, even just plugging the laptop into the TV, knew how to do it.	35	4
7-10	Personal experience	We had the game itself as well	2	1
7-10	Personal experience	: ICT in secondary and Animation Graphics in college and learnt more from there and use it to keep relevant	40	4
7-10	Personal experience - paper based	Used Pritt sticks and cut to size and put on pizza box. Then came up with set of rules using Microsoft word, basic layout and rules were put forward after creating physical piece.	11	1
7-10	Physical	we had a pizza box to put the game on	3	1
1-3	Platform used	windows	59	8
1-3	Platform used	windows & Apple	60	8
1-3	Platform used	mobile & laptop	61	8
1-3	Platform used	windows	62	8
1-3	Platform used	windows & Apple	63	8

1-3	Platform used	windows & Apple	64	8
7-10	Problem solving	figure out workarounds	61	7
1-3	Production speed	we took a couple of hours to get all the ones we needed all done	8	2
1-3	Production speed	it just felt it would have saved us manually printing out and save paper and it would have saved time	9	2
1-3	Production speed	most important was the deadline	39	6
4-6	Production speed	The game is visual because it's a board game and Photoshop gives us a very visual representation of how we were developing the game so it is better to picture in your mind, the game if you can see it and also a big part of the game is it uses hexes. And I think the idea of having to draw all of these hexes on the paper would be difficult, and waste of paper. Doing on software and being able to copy rows was a good idea	12	2
4-6	Production speed	only had a couple of weeks so wanted to make it as simple as we possibly could	17	2
4-6	Production speed	using Photoshop because it is the easiest to use	18	2
4-6	Production speed	Yes, we tried finding games that are not like strategy because those could be easily turned into board games whereas something like fast-paced game like Rocker League could be turned into a board game	24	3
4-6	Production speed	very conscious of the time limitations	42	5
4-6	Production speed	Yes, simple within the time period was the most important thing for our group	43	5
4-6	Production speed	Construction of game because we needed to meet deadline	44	6
7-10	Real world expectations	good to have mindset of being in industry	66	8
4-6	Real world experience awareness	So, treating as if in working world.	45	6
1-3	Research	gathering ideas as well	38	6

7-10	Research	Referencing from all sorts of different sources such plethora of different Mario Party games looked at all of those and got inspiration from those and look at other Mario Party games that exist	63	7
7-10	Research - Google Chrome	Board itself we used Photoshop. Google Chrome	15	2
7-10	Research - Internet	Wikipedia	18	2
7-10	Research - Internet	Google	19	2
4-6	Research - Personal experience	I just got a few board games in my house	38	5
4-6	Research - Personal experience	we did a lot of play testing	41	5
4-6	Research - Personal experience	We sort of treated ourselves as the end users when we play tested it	47	6
4-6	Research - Personal experience	Just used our intuition more than anything. I don't think there was anything purposefully researched.	49	6
7-10	Research - personal experience	Think of an actual game, brainstormed	41	5
7-10	Research - personal experience	Thought of games that had mechanics similar to board game mechanics. Mario Party was one of the first games that came to mind	42	5
7-10	Research - personal experience	You can't have a shooter on a board game, seems impractical, certain things that can't be transferred	43	5
4-6	Research - Personal experience / confidence	There wasn't much research as we pretty much knew all the software	50	6
4-6	Researched computer game	We did look at computer games as well like Minecraft which is a bit more complex in the rules in which they made for the mini game which we were basing it off for our game and we thought OK Snakes & Ladders it simple and successful. Minecraft is a bit more complicated	39	5



7-10	Rules - following	Sticking to rules was most important?	65	8
1-3	Social media communication	60% Facebook	19	3
7-10	Student expectations	Terrible tutor, horrible. Didn't teach well but introduced us into world of Photoshop so students would go off and do their own thing discovering new features the tutor didn't even mention	36	4
7-10	Student expectations	Photoshop in college? Yes, it was a scheduled, timetabled thing	37	4
1-3	Used most	Phone	70	9
1-3	Used most	desktop computer	71	9
1-3	Used most	desktop computer	72	9
1-3	Used most	desktop & phone	73	9
1-3	Visual aspect	To make it look like the game basically.	40	6
1-3	Visual aspect	you know what the goal is just by looking at the visual design.	41	6
1-3	Visual aspect	In the visual side yes	42	6
1-3	Visual aspect	The interface as well. We had a grid made of hexagons like snakes and ladders that sort of design, had the background for the video game and all the effects in the background	43	6
1-3	Visual aspect	I think I would agree with that as well.	45	6
1-3	Visual aspect	Agree as well	46	7
1-3	Visual aspect	Yes	47	7
1-3	Visual aspect	We used our own fonts and used typeface just as the title	48	7

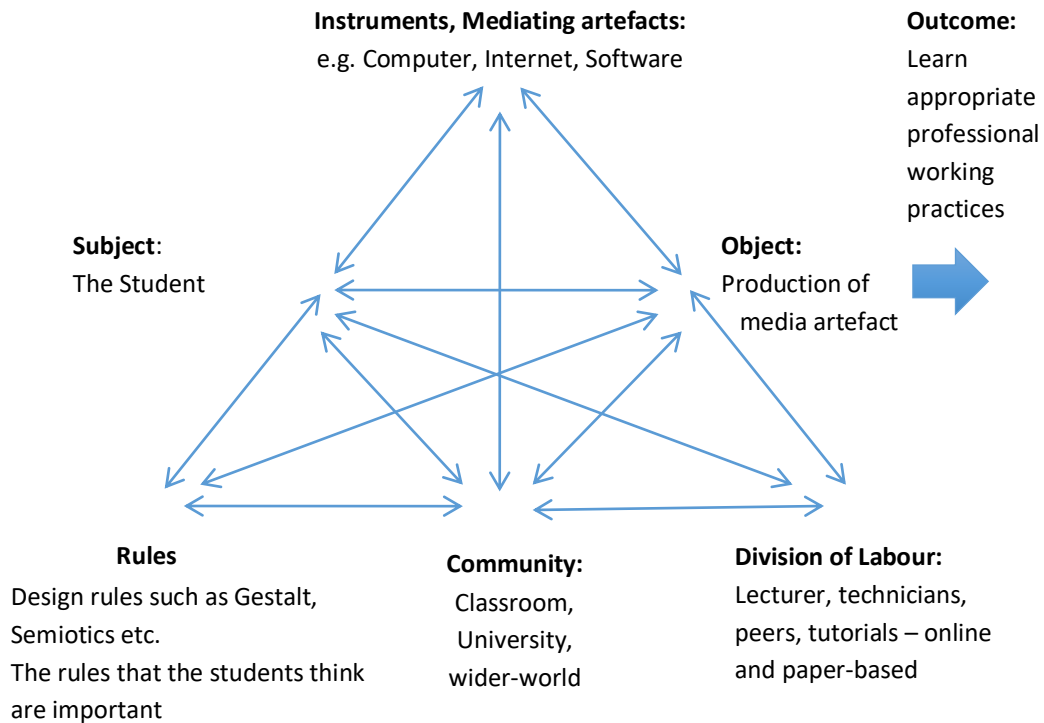
1-3	Visual aspect	It was near to the one used in the game or at least nearer to one used within that era or time period that the game is set in	49	7
1-3	Visual aspect	We decided it was suitable because it was more of a different fantasy historical media, it looked like same kind of typeface you would see in other history TV games, documentaries it was the same kind of writing, typeface you would see in those kinds of things	50	7
1-3	Visual aspect	The only typeface we used was in the middle of the board, we just used a font from the game we were basing it off	52	7
1-3	Visual aspect	We obviously knew what font it was because we were familiar with the game and someone made it on Photoshop	53	7
1-3	Visual aspect	That was where they designed it	54	8
4-6	Visual aspect	The game is visual because it's a board game and Photoshop gives us a very visual representation of how we were developing the game so it is better to picture in your mind, the game if you can see it and also a big part of the game is it uses hexes. And I think the idea of having to draw all of these hexes on the paper would be difficult, and waste of paper. Doing on software and being able to copy rows was a good idea	12	2
4-6	Visual aspect	visual aspects important to maintain consistency	15	2
1-3	Visual aspect	Mainly thinking about what the player would like to see really because if the interface is simple for the player to interact they can have a better time playing the game	44	6
7-10	Visual aspects - branding	Make sure looks and plays how you want it to play otherwise not your idea.	60	7
7-10	Visual aspects - branding	Yes, because we designed it off Mario Party is was essentially Mario Party so we have to stick with a bright colour pallet as if we changed to a nude colour party then it doesn't fit theme of Mario Party	62	7
4-6	Visual aspects – not considered as important to this group as much as the player experience and deadline	If it looks rough but it works that's what is important because we have still met the brief.	46	6

4-6	Visual aspects – used pen and paper	anything digitally we made physical versions on paper, rough ideas of the map	16	2
7-10	Windows photoviewer	We printed off just using Windows Photoviewer	5	1
7-10	YouTube tutorials	YouTube tutorials.	35	4

## Appendix 7 – Thematic Analysis

Literature search	Interviews	Questionnaires
Social communication – <i>use of digital communication methods for pleasure and personal use</i>	Communication methods – social media, Google docs, and face-2-face equally balanced	
Digital literacy – <i>superficial digital skills</i>  Ability – <i>over-confidence in ability compared with actual ability</i> – Dunning-Kruger Effect	Confidence – <i>over-confident in ability compared to actual ability</i> Un-willingness to ask for help/ over-reliance on the Internet for answers.  Lack of knowledge indicated in what the students said.	Confidence in ability – appears to be <i>misplaced</i>
Visual literacy skills – <i>Gestalt, Visual Rightness Theory, Semiotics</i>  Development of the ability to see – <i>visual communication skills/visual language/semiotics / intertextuality / memes</i>	Visual aspects – <i>similarity to what the target user was familiar with primary concern</i>	Mediocrity – <i>it was similar enough, based on their opinion</i>
Digital divide - <i>tools used – mobile, apps – limited knowledge of alternatives</i>	Production speed – <i>getting the job done quickly and easily very important to students. Tended not to look for alternative solutions, software tools -based choices on familiarity with software (having used it before) rather than using the right tool for the job. Ease of use and time considerations (too little time to learn how to do something properly)</i>	Production speed and familiarity with software.
	Google – <i>reliance on for research and images</i>  Visual design skills– <i>mainly based opinion on Google images.</i>	Internet used by all to search for images  Google images used
	Copyright and branding – <i>seemingly irrelevant, based on fair-use concept</i>	Copyright and branding irrelevant

# Using CHAT



## Applying the CHAT Framework

- Subject – individual student
- Instruments used – Google, Facebook, Photoshop, PowerPoint
- Object – Board game, advert - to introduce basic concepts
- Students' Object – to complete the task as quickly as possible

## Findings

- Rules – Speed of production, familiarity, similarity
- Community – Internet, peers, HE Classroom
- Division of labour – the individual, peers, the Internet, technology

## Initial thoughts based on these findings

- More emphasis on teaching design and production rules, incl. legal and ethical constraints
- Trying to get students engaged within the University community including staff and other students

## Further research to be conducted

Digital competencies

Dunning-Kruger effect

Fundamental attribution error

**Potential questions that the wider questionnaire needs to explore**

Where does the misplaced confidence come from?

What software are they familiar with?

Where and how did they learn it?

How long have they used it for?

What did they use it for?

In what depth did they learn it?

How much knowledge did their parents/teachers have of computers/software?

Why do they think that they already know everything? (Societal changes in not wanted to say that someone has done something wrong?)

Which subjects teach software and visual design skills? ICT, Media Studies, Art, Graphics,

Photography (may need to look at the curriculum for these subjects)

What do they understand about copyright law?

How often do they download images, music or information from the Internet?

How reliable do they think that information sourced online is?

What do they understand about design rules?

How important do they think they are?

Have design rules changed? – Instagram, memes

What do they base their design rules/knowledge on?

What do they use to take photographs, e.g. DSLR, mobile phone etc.?

## University of Chester - Faculty of Business and Management

### Ethical Principles Agreement

**Ethical principles you must adhere to from the start of your programme:**

- All students and staff will operate with as full a consideration as is reasonably practical for the consequences of their work for society at large and groups within it. All staff and students are expected to act in accordance with the Principles of Management Education ([PRME](#)) and the [Prevent Agenda](#).
- Students and staff will handle all confidential information with appropriate levels of discretion, compliance with the law and with due diligence as to the security of that data. As standard practice students and staff will normally seek to prevent the publication or use of information in any way that could compromise a participant's confidentiality or identity.
- Any material being prepared for submission will be produced in such a way as to reduce the possibility of breaches of confidentiality and / or identification.
- All learning claimed for, and all work submitted for assessment, will be the student's own, unless clearly stated otherwise.
- Students and staff will try to avoid overburdening the participants in their research, causing them inconvenience or intruding into their private and personal domains.
- Participants will be informed of the risk, purpose and nature of any inquiry in which they are being asked to participate.
- Students and staff will avoid misleading research participants or withholding material facts about research of which they should be aware.
- Where the research methodology allows for it, a research participant will be expected to be provided with a copy of this document along with a consent form which will also indicate a participant's right of referral and appeal to the relevant Programme Team. Where the research methodology suggests that a different kind of consent is the only one possible this will be made clear and participants will be referred to relevant departmental web pages or otherwise made aware of these principles by the researcher.
- All students are required, before their work-based projects and research projects begin, to complete a proposal with their tutor. Only after formal approval from their tutor (which may involve review by the Faculty Ethics Committee) will work normally be allowed to commence. Staff will need to seek approval from a Faculty's Ethics Committee member before commencing their projects.
- All members of staff and all students at all levels are required to read and agree to comply with these statements and to operate them in the full spirit in which they are written.
- Failure to comply with these statements may be regarded as a matter of academic malpractice and will be dealt with according to the relevant University guidelines, regulations and procedures.
- All work-based learners, researchers and supervisory staff at all levels are required to indicate their acceptance of these Principles.

- Data collected for the purposes of student projects must be kept for a period of five years by the researcher, and data for staff research projects are required to be held for at least 10 years (if not indefinitely). In either case, such timings may be subject to much shorter obligations depending on the nature of the research project.

**In signing below, I agree to the ethical principles outlined above, and any updates to these which may be made after signing (which will be posted on programme areas of the University's portal):**

**PRINT your name:**

**Your signature:**

**Date:**

Kate Sillitoe



29/09/16



## Appendix 9 – Ethics Checklist & Approval Form

**University of Chester**  
**Faculty of Business and Management**  
**Ethics Checklist & Approval Form**

(Please see guidance notes for help completing this form – please ensure you type into this document)

<b>Student / researcher name:</b> <i>Kate Sillitoe</i>	<b>Student number:</b> <i>0721985</i>
<b>Lead supervisor name:</b> <i>Prof. Danny Moss / Dr Andy Lyon</i>	<b>Module number:</b> <i>IS8003</i>
<b>Programme name:</b> <i>Doctor of Professional Studies</i>	<b>Site/partner:</b>
<b>Department:</b> <i>Chester Business School</i>	<b>Anticipated end date:</b> <i>June 2018</i>
<b>Title of project:</b> <i>Visual communication in the 21<sup>st</sup> Century: An examination of the visual and digital communication experiences of the post-Millennial learner</i>	
<b>Brief description of project</b> (between 200-400 words max):  Overall aim of research:  <i>This research intends to examine the extent to which young people are learning visual communication skills through their use of widely available digital media technologies. This is in order to understand the future educational needs of post-Millennial students of advertising.</i>  The following objectives have been identified:  <ol style="list-style-type: none"><li>1. <i>To examine the key debates around digital technology and the post-Millennial, and the implications for teaching and learning in the 21<sup>st</sup> Century.</i></li><li>2. <i>To identify the key skills needed to produce effective visual communication artefacts.</i></li><li>3. <i>To identify, in new learners of visual communication, what digital technologies they have previously used to develop visual artefacts.</i></li><li>4. <i>To identify what transferrable visual communication skills they already have, and which skills still need to be developed.</i></li></ol>	

Proposed research method(s):

*Four groups of post-Millennial students will be investigated using interview, questionnaire, observation and focus group. The resulting data will be coded and analysed to extract themes. A further layered analysis, using a Cultural-Historical Activity Theory (CHAT) framework, will also be carried out.*

Method of respondent recruitment (if relevant):

*Participants will be recruited from two programme areas – Advertising and Computer Science. Students will be given an information sheet that will explain about the research and volunteers will be asked to sign a consent form for their data to be used.*

## Part A: Ethics Checklist

	Yes/No
<b>Is it <i>likely</i> that the research will dis-benefit any of the following:</b>	Participants? <b>No</b>
	The researcher? <b>No</b>
	Other persons? <b>No</b>
	Equality of opportunities for individuals or communities? <b>No</b>
	The natural environment including other species? <b>No</b>
	The environment in terms of inappropriate use of natural resources? <b>No</b>
<b>Does the research involve contact with any of the following:</b>	Children or young people? <b>No</b>
	Vulnerable groups or individuals? <b>No</b>
	Sensitive topics/questions? <b>No</b>
	Extremist views or organisations (see <a href="#">Prevent Agenda</a> )? <b>No</b>
	Sensitive commercial or industrial information? <b>No</b>
	Any dangerous substances? <b>No</b>
	Any potentially dangerous equipment? <b>No</b>

Does the research involve the collection of audio, photographic or video materials?	Yes
<i>Could</i> the research induce psychological/physiological stress or anxiety, cause harm or have negative consequences for the participants or the researcher (beyond the risks encountered in normal life)?	No
Will financial incentives be offered to participants?	No
Will it be necessary for the participants to take part without their advance knowledge or consent?	No
Might there be any other potential risks or hazards for the researcher or the participants?	No
<p>If you have replied <b>YES</b> to ANY of the questions above, please complete <b>PART B</b>.</p> <p>If you have ticked <b>NO</b> to all questions above, then <b>complete PART C</b> and submit with your proposal.</p>	

## Part B: Action Plan

Please address each 'yes' ticked in part A by giving a brief description of the potential ethical issue and a relevant action that you will put in place to manage the situation.

Potential Ethical Issue or Risk  (e.g. You will record the voice of an interview participant)	Action (e.g. You will design a consent form that informs the participants of the purpose of the research; their rights; the way you will handle/use the data, a CRB check will be conducted etc.)
Some interviews may be audio recorded	<i>A consent/information form will be issued to the participants. This form will need to be understood and signed by the participants prior to data collection. The participants will then be given one week after the collection of the data to withdraw their consent to the data being used. The data will then be anonymised and aggregated, at which point it will be no longer possible to identify individual participants.</i>

## Part C: Governance

Please give details below of how you plan to deal with any unexpected issues or risks during your project (related to any ethical or other project risk issue). For example, name individuals who you may seek advice or who may be able to offer supporting in managing any issues as they arise. This may also include people who need to be informed of unexpected information related to the Prevent Agenda (see [Prevent Agenda](#)).

*Any concerns or queries will be directed to my supervisors Prof. Danny Moss and Dr Andrew Lyon.*

## Part D: Declaration and signature

**Organisational permission**

*(please mark one box with an 'x')*

☐

**I have permission to undertake this project, and have attached evidence**

*(e.g. an email from a line manager)*

☐

**I have not attached evidence of permission (but this is likely to be needed)**

*(your project will typically not be approved without permission)*

☐

**I do not need permission (e.g. you are self-employed) and have attached evidence where possible** *(e.g. an email from a line manager)*

**Declaration:** I believe the information I have given in this form is correct. I have read the attached guidelines and have consulted an appropriate research textbook/source to help me develop an appropriate action plan to address any relevant issues identified. I also confirm that all data/information will be handled and stored in line with the Data Protection Act.

**Signed by applicant:**  
30/11/17



**Date:**

## Part E: Ethical approval outcome

**Module Tutor / Lead Supervisor** *Please select one of the following options (with an 'x'):*

I have reviewed the detail of the application, and can confirm all relevant documents have been provided.

x

**Option A** Based on the information / conditions presented in this form the research can proceed

**Option B** To be returned to the student for further consideration/development

<input type="checkbox"/>	<b>Option C</b> The project needs to be referred for further consideration to a second opinion
<input type="checkbox"/>	<b>Option D</b> To be referred for further consideration by the Faculty Ethics Committee

**Name of Lead Supervisor: Dr. Andy Lyon**

**Signature of Lead Supervisor:**  
30/11/17



**Date:**

*When Option C is selected ONLY:*

☐

Please state outcome of discussion: **A, B or D**

Name of staff providing second opinion:

Signature of staff providing second opinion:

Date:

#### OFFICE USE ONLY

*If 'A' is selected, then copies of this form are sent to:*

Student file (Programme Administrator)

Recorded on "Ethics Approval Document" and forwarded to the RKTO

*If 'B' is selected, the Lead Supervisor will advise the student to further develop the proposal.*

*If 'C' is selected, the Lead Supervisor will seek advice from the Module or Programme Leader (or where these are the same person, then the Deputy Dean or Executive Dean).*

*If 'D' is selected, then this form is sent to the Faculty Ethics Committee Coordinator (Andy Lilley) to convene a Committee meeting.*

#### FACULTY ETHICS COMMITTEE USE ONLY

<b>DATE:</b>		<b>**CONDITIONS/REQUIREMENTS:</b>
<input type="checkbox"/>	<b>PROCEED (A)</b>	
<input type="checkbox"/>	<b>CONDITIONAL PROGRESSION** (B)</b>	

	REJECT** (B)	
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Committee member name:	Committee member name:	Committee member name:
Signature:	Signature:	Signature:

V 08.09.16